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EDUCATIONAL ACHIEVEMENT--ITS CAUSES AND EFFECTS.
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INTERVIEWS WERE CONDUCTED WITH HEADS OF HOUSEHOLDS TO ASCERTAIN IF LEVELS OF EDUCATION AND INCOME PERPETUATE THEMSELVES FROM GENERATION TO GENERATION. A REPRESENTATIVE SAMPLE WAS DRAWN FROM FAMILIES IN THE UNITED STATES. IN A SAMPLE OF 3,000 INTERVIEWS, ABOUT 600 REPRESENTED LOW-INCOME FAMILIES. DATA WERE COLLECTED ON THE PAST HISTORY OF THE INDIVIDUAL INTERVIEWED, INCLUDING HIS EDUCATION, CHILDHOOD, RECENT EXPERIENCE IN THE LABOR MARKET, ATTITUDE TOWARD HIGHER EDUCATION, AND HIS PLANS FOR THE EDUCATION OF HIS CHILDREN. SINCE THE DATA WERE COLLECTED AS PART OF A LARGER STUDY, AN ANALYSIS OF RELATIONSHIPS AMONG EDUCATION, EMPLOYMENT HISTORY, AND MOTIVATION WAS POSSIBLE. ALL OF THESE ANALYSES REVEALED THE POWERFUL IMPACT OF PARENTAL CHARACTERISTICS ON CHILDREN'S EDUCATION AND DOCUMENTED THE TREND BY WHICH EACH GENERATION TENDS TO GET MORE EDUCATION THAN THE FORMER. IN EACH ANALYSIS, EDUCATION OF THE FATHER WAS THE MOST POWERFUL PREDICTOR OF CHILDREN'S EDUCATION. MORE STUDY IN OTHER AREAS OF EDUCATIONAL ATTAINMENT IS NEEDED. (GC)

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EDUCATIONAL ACHIEVEMENT--
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PREFACE

Large-scale social research is a group undertaking, its total quality depending upon the quality of many individuals' contributions. We are indebted to Charles Cannell and Morris Axelrod for aid in the design of the questionnaire and supervision of the field operation, to Irene Hess for supervision of the sampling design and procedures, to Doris Muehl for aid in the development of code and supervision of the content analysis, and to John Sonquist and Keith Mather for data processing including the reprogramming of the multivariate analysis for the IBM 704. The contributions of Norma Meyers and Barbara Baldwin extended beyond the usual research assistance into substantive contributions, writing descriptions of the procedures, and editing.

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SUMMARY OF FINDINGS

As part of a larger study of income and welfare in the United States, careful examination of the role of education was undertaken. Since education is known to have a pervasive effect on income, employment, advancement, and hence economic welfare, it becomes important to know what determines how much education an individual gets. Secondly, it is important to know the extent to which education depends upon the parents' education and income, so that low levels of education and income constitute a syndrome which perpetuates itself from generation to generation. The larger study documents the way in which education affects people's economic welfare. This report will concentrate on the factors which affect education, with the exception of an examination of the relation of education to career patterns.

The data are based on a single national personal interview survey, representative of the noninstitutional population of the United States. Questions were asked about the education of the spending unit heads, their wives, and their fathers, about the completed education of their children, and plans for the education of children who had not finished school. In addition, we asked some general questions about how much schooling children should get, and about whether more or less government aid to higher education should be forthcoming.

The combination of analyses, all dealing with the determinants of education and the mechanism of its intergenerational transmission, can only be interpreted as a mechanism for opportunity and mobility if one has some norms as to how much mobility is expected. The overall result is clearly not a random process where every child has an equal opportunity, neither is it a rigid system without opportunity. Hence the summary will largely compress the results without imposing values or norms upon them.

Determinants of education

In our study of levels of education, a multivariate technique was used to assess the effects of various background factors. Persons whose educations were studied included spending unit heads and their children who have completed their educations. A third analysis dealt with education expected by spending unit heads for their children who have not yet finished school. This analysis of planned education considered boys and girls separately, since some parents make different plans for each.

All of these analyses revealed the powerful impact of parental characteristics on children's education and documented the trend by which each generation tends to get more education than the last. In each analysis, education of the father was the most powerful predictor of children's education. Children of all but the most educated fathers tend to receive substantially more education than their fathers.

Where the information was available, that is, in predicting completed and planned education for spending unit heads' children, the education of the mother and paternal grandfather were also important. These variables were considered only as differentials from the father's education and indicated a tendency for children to get more education if the mother or grandfather is more educated than the father.

Occupation of the father was another important factor, with children of high status workers tending to get more education. The relationship existed even after allowing for the differences in education of fathers in different occupations. However, where it was possible to utilize an accurate measure of family income at the time the family pays for the education of its children, the effect of father's occupation was diminished.

Current gross disposable income was second only to father's education in its power as a predictor of expected education for boys and fourth for girls. Since only an approximate measure of income was available to coincide with completed education of children and nothing was available for spending unit heads' education, it is not possible to make a comparison between the three analyses.

Number of siblings was another important variable in all of the analyses, with children from smaller families receiving consistently more education.

A personality measure of the father's achievement motivation and his attitude toward hard work and luck as a means of getting ahead were related to educational achievement of his children. Fathers with higher achievement motivation scores and those who see hard work as the path to success have children with more education.

In the analysis of spending unit heads' education it was necessary to use the head's achievement motivation and attitude toward hard work rather than his father's. In this instance it can be argued that the measure is a result, rather than a cause, of his level of education. The possibility still remains that the same personality disposition which influences the amount of education that a parent provides for his children also affects the amount of schooling that a person acquires for himself.

Nonwhites attain much lower levels of education than whites. However, the power of race as a predictor of education was reduced substantially by the inclusion of such variables as income and education of the father in the multivariate analyses.

Fathers who were nineteen or younger when their first children were born tend to provide and expect less education for their children than fathers who were older. This relationship may arise from the fact that parents who are very young when their children are born do not have an opportunity to accumulate savings before they are faced with the expenses of raising children.

Three other variables were significant in the analysis of education of spending unit heads. Younger heads tend to receive considerably more education than do older ones, even when we allow for the fact that younger heads have fathers with more education. Age was not significant in predicting education of spending unit heads' children.

Spending unit heads who grew up in northern cities are more educated than those who grew up in southern towns or on southern farms. No parallel variable was used for education of children. However, spending unit heads who grew up in the South and still live there have children whose completed education is significantly lower than average. This relationship did not appear for planned education.

Religion of the father was an important predictor of spending unit heads' education. Heads whose fathers were Catholic tend to have less education than average; those whose fathers were Presbyterian, Episcopalian, or non-Christian, more. A similar variable was used for education of children. It did not show the same relationship with religious denomination, but indicated that fathers who frequently attend church provide more education for their children than those who infrequently attend.

Some implications for the demand for education

The implications of our analysis for the future demands for education can be derived in a number of ways, and this task is largely left to others. Our data provide estimates of the effects of various background factors on educational attainment. These effects can be used as they are, or trends in them extrapolated. Projections of changes in the distribution of the background forces can be used to estimate the future distribution of education.

More detailed data are also available in the form of relationships between education of the spending unit head and that of his father, or between the education of the children and the education of the head. These can be thought of as estimates of conditional probabilities by which one could move from an educational distribution in one generation of spending unit heads to the educational distribution in the next generation. A cursory examination of such processes indicates that they produce consistent and meaningful results. The problem is that families have different numbers of children, so that projections require weighting according to family size. In the transition from spending unit head's father to head, each child who becomes a head of a spending unit is represented properly.

It is important to remember that our analyses explained between 28 and 41 per cent of the variation in education, completed, or planned. This is a good record for explanation of individual behavior, yet it means that about two thirds of the variation in educational attainment is not explained by the forces we measured.

Plans for sending children to college

Among parents planning college for their children the overwhelming majority plan to send their children to state colleges, far more than the present proportion of enrollments. The preference for state colleges is somewhat less marked for Catholics, and for those with a private college nearby but is almost universal where there is only a public college in the area. Clearly, the location of colleges is important, and the development of more publicly supported colleges will facilitate what is already a powerful disposition to send children to publicly supported colleges. The only countertrend might come from the tendency for those with higher income to favor private colleges. A rising level of income might make it possible for more parents to send their children to private colleges.

Plans to have children live away from home while attending college were much closer to current experience with approximately one third of the prospective college students expected to live at home. In addition to the effects of proximity to a college, higher income once again is associated with more frequent plans to have the children go away to college.

The extent to which parents expected the children to finance their own college education, in whole or part, was of course associated with the parents' own financial position. But the most important finding is the large extent to which parents expect children to meet their own college expenses.

Attitudes toward public support of higher education

Many people had no opinion about tax support for higher education. Of those who did, a majority felt that a larger part of the costs of higher education should come out of tax funds. Those most likely to need such aid for their own children were more likely to favor it; those with lower incomes, nonwhites, people in states with low public expenditures on higher education, people with more children. Catholics, whose Democratic affiliations and lower incomes apparently outweighed any tendency to prefer private colleges, also favored more public expenditures for higher education.

It is important to note the substantial minority who favor less tax support for colleges, as well as the frequency of no opinion at all. There is apparently no groundswell of opinion currently favoring expansion of tax supported higher education, in a period when very large expenditures may be called upon both for expansion and for current operation of publicly supported colleges.

A surprisingly large number of people favor tax support for all college students, rather than tax support only for those with need or ability.

The impact of education on careers

It is well known, and more fully documented in our report on the whole study, that education is a powerful determinant of income. People with more formal education start out in a better first job, suffer less unemployment, report more frequently that if they lost their present job their chances of finding another would be good, and report better chances for promotion.

The result of this, and of the greater tendency for the highly educated to be given supervisory and other responsibilities, is that their incomes and their savings are higher. Finally, they are more likely to expect an increased income in the future. Education is seen to affect not only occupation and income, but the stability of that income, and the chance of increasing it over the working life.

Chapter #1

THE TRANSMISSION OF EDUCATION FROM FATHERS TO SPENDING UNIT HEADS

Factors determining the level of education of spending unit heads were studied through a multivariate analysis. This enabled us to make some estimates of the extent to which different dimensions of the family background affect the level of education achieved by heads.

A spending unit head is the major earner in a group of related persons who live together and pool their incomes for major expenses. In the case of a married couple, the husband is always the head. Since this analysis applies only to spending unit heads, the relationship should be thought of as applying to financially independent males and unmarried females, rather than the entire adult population.

In the analysis education was scaled to emphasize the completion of different levels of education. Thus high school graduates are distinguished by one point from nongraduates, and those who achieve a college degree are differentiated by one point from those who have less than four years of college. The effect of the scaling is to give those persons who have not completed the formal requirements for a degree or diploma somewhat less credit than would be indicated by the number of years of schooling they have achieved. The scale is as follows:

0. none
1. 1 - 8 grades
2. 9 - 11 grades
3. 12 grades
4. 12 grades and nonacademic training
5. college, no degree
6. college, bachelor's degree
7. college, advanced degree

The variables used in this multivariate analysis of spending unit heads' education may be grouped roughly into three categories: those which reflect underlying motivation to achieve a high level of education on the part of the head or his parents; those which indicate the availability of facilities for education; and those which serve as an index of the economic difficulty or ease with which the family could afford to send its children to college. Educating children involves both the direct expenses of schooling and the indirect loss of earnings which the child could contribute to the family if he were not in school.

The motivation of the parents to educate the spending unit heads is measured by the education of the heads' father, his religious preference, and where he grew up, and his occupation. These variables are only crude indicators of motivation, but represent the information about the head's father that is most probably related to motivation in some way. The father's education reflects a motivating force to the extent that each parent desires as much or more education for his children than he had achieved. We hypothesized that the religion of the head's father might indicate cultural values stressing educational achievements. Thus we would expect the religions high on our socio-economic scale to be associated with high educational achievements.

Parents who grew up in foreign countries are the more mobile persons in their own country. They may have broader horizons and higher aspirations for educating their children than second or third generation Americans. Moreover some regions may stress educational attainments more than others do. Parents raised in the South may feel education less important than parents raised in the North. We will test these hypotheses directly in our analysis of parents' aspirations. (See Chapter #3.)

It is probable that parents with professional or technical occupations demonstrate to their children the need for education to obtain remunerative and rewarding jobs. Presumably these same persons would encourage their children to get as much education as possible in order to be able to obtain similar types of work. Occupation is also an approximate indicator of income and the family's ability to finance its children's educations.

As this is a sample of spending unit heads and is not a representative sample of fathers of spending unit heads, the relationships shown are weighted by the number of living children of the father who are spending unit heads. Unless the number of living children that are spending unit heads and other characteristics interact in their effect on the head's education, the effects of the weighting on the observed relationships is negligible.

Self- employment of the head's father was taken as an indicator of the father's ambition and attitude toward self-help. Up to this point, the variables discussed measure characteristics of the father of the spending unit head. Several characteristics of the head were also included in the analysis. Achievement motivation of the head and his attitude toward hard work as a means to success were included as another measure of the motivation for high educational attainments. Atkinson and McClelland suggest that the need for achievement is formed very early in childhood by parental independence training. 1/

1/ D. C. McClelland, J. W. Atkinson, R. S. Clark, and E. L. Lowell; The Achievement Motive (New York: Appleton-Century-Crofts, 1953).

Therefore a high level of need-achievement should be a strong incentive to excel and to complete a maximum of formal education.

Our measure of need-achievement was obtained after the head had completed his education so that it is possible that amount of education influenced his ability to score well on our measure. In this analysis, we must assume that achievement motivation affects education rather than the reverse. Chapter #2 shows that the need-achievement index of the parents is strongly related to the education of children. To the extent that high levels of need-achievement are also transmitted to the children, our assumption seems reasonable.

The place where the head grew up was used to indicate the availability of education to the head. If the head grew up in the South or in a rural or semirural area, it is likely that fewer and inferior schools were available to him. In rural areas the pressures to skip school and help on the farm might also affect educational attainments.

Race was also used as a measure of availability of education. Schools attended solely or primarily by nonwhites may be inferior to schools for whites. Hence we would expect college education to be less accessible to nonwhites. Belief that prejudice limits the advancement of nonwhites beyond unskilled occupations might reduce the nonwhites'incentive to get education.

Age of the head is taken as another measure of the availability of schools. We know that for persons over sixty-five far fewer high schools were available in proportion to the population than there were for the younger persons. In addition, increasing emphasis on education over the past half century has resulted in increases in standards of education in this country. Therefore, we should expect a negative correlation between age and education.

Number of siblings of the head should indicate the ease or difficulty with which the family could afford to educate its children.

Sex of the spending unit head may be thought of as a variable related to economic pressures on the parental family. If there was little income to be spent on educating the children, the family may have educated its boys and let the girls drop-out of school. If so, girls attain less education than boys whose families have similar characteristics.

In Table 1-1 we present the results of our multivariate analysis. The factors included in the analysis explain 35 per cent of the population variance.2/ The average education of all spending unit heads is slightly less than a high school diploma as indicated by a grand mean of 2.82. The standard deviation was 1.79.

See Appendix C for a description of beta coefficients and F ratios.

2/ In a study of two Louisiana parishes Alvin L. Bertrand and Marion B. Smith discovered many of the factors studied here were significantly related to high-school drop-outs, repeating grades, and parental interest in education. See Alvin L. Bertrand and Marion B. Smith, "Environmental Factors and School Attandance," United States Department of Agriculture, Agricultural Marketing Service, Bulletin #533 (May, 1960).

Table 1-1

Characteristics used to explain education (for spending unit heads)

Characteristics of spending unit heads	Relative importance (Beta coefficients)	Significance (F ratios)
father's education	.246	46.23**
age	.180	24.75**
father's occupation	.175	15.60**
number of siblings	.163	24.36**
attitude toward hard work and need-achievement score	.145	16.06**
background	.139	17.71**
father's religious preference	.119	7.21**
region where father grew up	.054	1.91
race	.034	5.30**
self-employment of father	.019	1.65
sex	.013	0.77

** significant at a probability level of .01

Table 1-2

Education: deviations for education of heads' fathers (for spending unit heads)

Education of heads' fathers	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
none	151	-1.40	-.61
1 - 8 grades	1759	-.20	-.15
9 - 11 grades	183	1.01	.60
12 grades	278	1.18	.70
college, no degree	99	1.48	.87
college, degree	93	2.17	1.13
not ascertained	433	-.91	-.44

[a] deviations from grand mean of 2.82

Education of the head's father was by far the most important of the factors determining the spending unit head's education. The average education of heads whose fathers were college graduates is three and one-half points higher on our index than the education of the heads whose fathers had no education. Since the education of the head's father is highly correlated with the age of the head and with the father's occupation, these effects are attenuated by the multivariate adjustment. However, even after adjustments for the other variables, education of the father remains the most powerful predictor.

The pattern of adjusted deviations in Table 1-2 shows two interesting results. First, it lends support to the hypothesis that motivation for people to contine in school is directly related to the educational attainment of their parents. Children of more educated parents attain more education than the average. Second, the results indicate some regression of children to the average educational attainment. Even the unadjusted means indicate that children of parents with no education enter high school, while children of college graduates average slightly less education than the level indicated as some college. For parents with college training this result was to be expected. Not all children have the ability to complete a college course successfully. The average education attained by children of college graduates suggests that less than half of the children entered college and the remainder completed high school. The superior accomplishment of the children whose education exceeds that of their parents suggests that community influences motivate children to complete a minimum education no matter what their parent's background.

Table 1-3

Education: deviations for age
(for spending unit heads)

Age	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
18 - 24	263	.60	.29
25 - 34	586	.48	.33
35 - 44	672	.28	.25
45 - 54	593	-.15	-.12
55 - 64	485	-.36	-.26
65 - 74	269	-.80	-.53
75 and older	128	-1.01	-.65

[a] deviations from grand mean of 2.82

As was anticipated, older persons attained substantially less education than younger persons in our sample. We interpret the difference as a trend towards increasing educational standards and increasing availability of school facilities. This trend may well attenuate itself; we should expect that in the future differences in the education achieved by different age cohorts in the population will diminish.

The reduction in the estimated size of the effect when the coefficients are adjusted for the other variables comes largely from the correlation between age and education of the head's father: younger heads are likely to have fathers with more education.

Table 1-4 demonstrates the relationship between age of head and education of head and father. Most spending unit heads have acquired more education than their fathers. Heads whose fathers did not enter high school have gone to high school; heads whose fathers graduated from high school have gone to college. Moreover, there has been a marked shift in the educational attainment of spending unit heads of differing ages in relation to the attainment of their fathers. A majority of heads whose parents did not go to high school failed to achieve more education if they are fifty-five or older; only a fifth failed to go further in school if they are under fifty-five.

Table 1-4

Education of spending unit heads within their age and the education of their fathers
(percentage distribution of spending unit heads)

	Education of heads' fathers, age of heads															
	0 - 8 grades			9 - 11 grades			12 grades			some college			all spending unit heads			
Education of spending unit heads	heads under 35	heads 35-54	heads 55 or older	heads under 35	heads 35-54	heads 55 or older	heads under 35	heads 35-54	heads 55 or older	heads under 35	heads 35-54	heads 55 or older	heads under 35	heads 35-54	heads 55 or older	All
0 - 8 grades	21	32	60	6	9	18	2	11	16	1	7	14	15	27	53	32
9 - 11 grades	29	25	17	14	23	16	16	10	21	8	8	16	23	23	17	21
12 grades	31	29	11	46	20	31	32	36	27	22	19	17	32	29	13	25
some college	19	14	12	34	48	35	50	43	36	69	66	53	30	21	17	22
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Number of spending unit heads	561	1031	752	96	67	20	118	96	64	75	71	46	850	1265	882	2997

Table 1-5

Education: deviations for fathers' occupations (for spending unit heads)

Occupation of heads' fathers	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
professionals	140	1.75	.71
managers	73	1.32	.62
self-employed businessmen	328	.59	.37
clerical or sales workers	168	1.08	.42
craftsmen or foremen	402	.27	.12
operatives	329	-.21	-.20
laborers or service workers	461	-.72	-.33
farmers	891	-.55	-.22
members of the armed services or government protective workers	27	.63	.32
not ascertained; never worked	177	-.23	-.12

[a] deviations from grand mean of 2.82

Several interpretations of the relationship between occupation of fathers and educational attainment of spending unit heads can be developed. One possibility is that the link between education and particular career lines is demonstrated to the children through the occupation and success of the parent. Children may relate the ability of the parent to do professional work to the parents' educational achievements. This would provide incentive for the children of professionals and managers to obtain more education.

An alternative interpretation is that occupation serves as an indirect measure of the earnings of the family. Professionals and manangers are better able to afford college education for their children than operatives or laborers. Some support for the latter interpretation comes from the fact that the occupation of the spending unit head bears little relationship to his aspirations for educating his sons in a relationship in which his income is measured. (See Chapter 3.)

A somewhat unexpected finding is that operatives show a negative deviation from the grand mean nearly as large as unskilled laborers, although their mean income is considerably higher.

The differences between the adjusted and unadjusted deviations shown in Table 1-5 exhibit the advantages of the multivariate technique used to obtain the adjusted results. A simple set of averages attributes to occupation differences which a multivariate technique assigns to education and other dimensions. As a result the adjusted effect of occupation is substantially smaller than the unadjusted effect.

Table 1-6

Education: deviations for number of siblings (for spending unit heads)

Number of siblings	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
none	210	.77	.43
one	338	.88	.41
two	410	.57	.27
three	378	.19	.11
four or more	1538	-.52	-.20
not ascertained	122	.07	-.72

[a] deviations from grand mean of 2.82

The larger the family is, the greater are the demands made upon its income for current needs; the less it can afford the double cost of sending children to college and foregoing the income that they could earn. Therefore we hypothesized that the number of children in a family should be associated closely and inversely with the average amount of schooling achieved by children. Table 1-6 shows this effect very clearly.

The reduction in the impact when the coefficients are adjusted follows from the correlation between parents' education, age of head, and family size: more recent generations and more educated parents had smaller families and educated them more.

Table 1-7

Education: deviations for attitude toward hard work, need-achievement score (for spending unit heads)

Attitude toward hard work, need-achievement score	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
hard work is equal to or more important than luck; need-achievement score is:			
high range	714	.52	.28
middle range	1070	.09	.05
low range	511	-.36	-.23
hard work is less important than luck; need-achievement score is:			
high range	132	.08	.08
middle range	270	-.70	-.49
low range	177	-.96	-.48
not ascertained	122	.04	.34

[a] deviations from grand mean of 2.82

The head's need-achievement score and perception that hard work gets one ahead in the world are strongly related to his level of education. Heads with high levels of need-achievement also have better than average education. In part this correlation may be an artifact of the process by which we measured need-achievement. Spending unit heads were asked how they thought most people would feel if their sons chose each of nine occupations. The extent to which heads differentiated in favor of difficult, high reward occupations was taken as a measure of need achievement. Educated persons are better able to evaluate differences between occupations and the relative difficulty of occupations than are uneducated persons who may have much more limited experience. However, correlation between the underlying ranking of each occupation and education is not particularly high; also, both a high achievement score and a perception that hard work is necessary to get ahead are needed to cause a substantial positive deviation from the grand mean. These facts taken together indicate that we probably have tapped an important dimension of motivation affecting education achieved by the head.

Table 1-8

Education: deviation for background
(for spending unit heads)

Background	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
grew up in southern United States:			
on a farm or in a small town	597	-.73	-.27
in a large city or several places	106	.10	-.07
grew up in non-southern United States:			
on a farm or in a small town	1253	-.05	-.08
in a large city or several places	748	.61	.19
grew up in foreign countries	163	-.53	-.13
not ascertained	129	.32	.91

[a] deviations from grand mean of 2.82

Heads raised in the South or on a farm average less education than heads raised in northern cities. Poorer educational facilities and lower incomes in the South, and the frequent need for farm children to stay home and help run the farm may produce these differences. The table shows that the foreign born also attain somewhat less education than the average, even after allowing for the education, occupation, the background of their fathers, and their generally advanced age.

Table 1-9

Education: deviations for religious preference of fathers (for spending unit heads)

Religious preference of fathers	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
Baptists	718	-.36	.00
other Fundamentalist Protestants	291	.00	.08
Roman Catholics	608	-.21	-.30
Lutherans	213	.10	.00
non-Christian, non-Jewish	22	1.16	.65
not ascertained	143	-.33	.07
other non-Fundamentalist Protestants	724	.10	.02
Presbyterians	124	.90	.48
Jews	82	1.28	.58
Episcopalians	71	.80	.26

[a] deviations from grand mean of 2.82

When religious groups are categorized according to the difference in the average income level of their memberships and the proportion of the membership who are college graduates, a significant relationship appears between the affiliation of the parent and the educational attainment of the children. In Table 1-9 groups are shown approximately in order of the average income and education received by the members.

Jewish, Presbyterian, and Episcopalian parents appear to provide more education for their children than would be expected on the basis of other characteristics, while Roman Catholics provide less.[3]

This finding may be interpreted in a number of ways. The scale of religious preference may provide an indication of the ability of the parents to afford an education for their children not accounted for by other factors. The scale may also measure the degree to which a particular reference group provides a standard of educational attainment which guides the parent in educating his children. Alternatively the effect here attributed to religious preference may stem from the value structure implied by membership in a particular sect. Without further evidence, which is not available in this body of survey data, we cannot say more about the validity of these interpretations.

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[3] Lenski reports that Jews are less likely to drop out of school or college than members of other religious groups. However, he does not control for the background and economic level of families with different religious preferences. Hence the finding is comparable to the unadjusted deviations shown in Table 1-9. See Gerhard Lenski, The Religious Factor (New York: Doubleday Book Company, 1961), p. 60.

See also Neil J. Weller, Religion and Social Mobility in Industrial Society (unpublished Ph.D. dissertation, The University of Michigan, 1961).

Table 1-10

Education: deviations for race (for spending unit heads)

Race	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
white	2579	.09	.02
nonwhite	417	-.75	-.18

[a] deviations from grand mean of 2.82

Nonwhites average slightly less education than whites. Though the unadjusted difference in the education of the two groups is large, father's education, occupation, and other characteristics included in the analysis appear to account for most of the differences in average educational attainment of the two groups.

Table 1-11

Education: deviations for region where fathers grew up
(for spending unit heads)

Region where fathers grew up	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
Northeast	428	.32	-.07
North Central	661	.35	.14
South	1117	-.33	-.05
West	116	.37	.18
foreign countries	579	-.08	-.02
several regions	27	.04	.00
not ascertained	68	-.70	-.31

[a] deviations from grand mean of 2.82

The effects shown in Table 1-11 and the following tables are not particularly important. However, such impact as the deviations do suggest generally, is in the direction one might expect. Children whose fathers grew up in the North Central region and the West have slightly more education; those whose fathers grew up in the South have slightly less education than the average.

Table 1-12

Education: deviations for sex
(for spending unit heads)

Sex	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
male	2385	.03	.01
female	611	-.13	-.05

[a] deviations from grand mean of 2.82

Though female heads of spending units average slightly less education than male heads, the difference is not statistically significant. As a large proportion of the female heads are elderly widows, they come from a cohort whose experience includes little education for both males and females. Hence there is little expectation of substantially different attainments. It must be remembered that this investigation does not provide a good test for the effects of sex since it includes only females who are heads of spending units; these comprise only one fifth of the country's women.

Table 1-13

Education: deviations for self-employment of fathers (for spending unit heads)

Self-employment of fathers	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
self-employed	1286	-.09	.04
not self-employed	1710	.07	-.03

[a] deviations from grand mean of 2.82

None of the differences for self-employment of fathers are significant or important.

Stability of the relationship

As the level of educational attainments has changed so remarkably within the time that the spending unit heads in our sample were educated, it seems quite possible that the relationships shown in our analysis have also changed. To ascertain whether the relationships shown are independent of the time when the head of the spending unit was educated, we repeated the analysis for spending unit heads under thirty-five years of age and omitted characteristics shown to be insignificant in the analysis of the entire cross section. Spending unit heads under thirty-five comprise less than a third of the sample. This age group is most likely to have benefited from education received in the armed services or under the G. I. bill. Thus one might expect the parental influence on the head's education to differ from the parental influence on earlier generations.

The average attainment for the young spending unit heads was 3.34. This average is half a level higher than the grand mean for the entire cross section. Table 1-3 shows roughly .30 of this difference can be attributed to the difference in age or factors related to the time when these young people were educated. The remaining differences in average educational level of the cross section and the young spending unit heads results from the difference in their characteristics. The parents of young spending unit heads averaged considerably more education, included significantly fewer farmers, and had smaller families than is typical for the cross section as a whole. The change in each of these distributions implies greater educational attainments.

In fact, the relationships obtained were very similar to those already presented. All the effects were roughly of the same size and direction as shown in Tables 1-2 through 1-9. Even the prominent differences between the Jewish, non-Christian, and Roman Catholic groups were about as important. Thus it seems that the change in educational attainments which has occurred over the last fifty years results from a process which has not altered fundamentally during the period. Parents' education, occupation, and background appear to produce the same differences in educational attainments among young spending unit heads as was true for previous generations.

Chapter #2

THE TRANSMISSION OF EDUCATION OVER THREE GENERATIONS

The analysis of the average educational achievements of children of spending unit heads differs conceptually from the findings of the previous chapter in several ways. Considerably more data about the head of the spending unit and his wife are available to relate to educational attainment of their children than were available for explaining the educational attainments of the heads. This advantage is partially offset by the fact that the analysis is limited to those families who have children finished with school: about a third of all spending units.

The dependent variable in this analysis differs in several respects from the index of educational attainments used previously. Educational achievements of children are measured by the number of grades completed, without giving added weight to the attainments of those who completed a degree program.

Cases where the education of children was not ascertained are excluded. Grades completed refers only to academic schooling, with some college considered 13 years; college degree, 16 years; master's degree, 17 years; and Ph.D., 20 years.

Secondly, the measure used is an average of the number of grades completed by all the living children of the spending unit head who are finished with school. Thus all children are represented, regardless of whether they are the heads of spending units. The average is a convenient summary measure of the attainments of the children, but it must be multiplied by the number of children in the family in any discussion of the distribution of actual attainments of that generation. Studying the average attainment has the disadvantage that it makes it impossible to consider the impact of characteristics of the individual child on his educational attainment. So long as the characteristics of individual children have an effect which is in addition to the effect of characteristics of the family, the results presented are not biased.

The average somewhat understates educational attainments. Teenagers who have already dropped out of school are included in the average while those who are continuing their education and will show above average attainments are not included. In all likelihood, the downward bias has a negligible effect on the relationships in our analysis.

The variables used to explain educational attainments of the children of spending unit heads parallel those used in the previous analysis wherever possible. (See Table 1-1.)

In both analyses, parental motivation was represented by education, occupation, religious preference, and region. Since more information was available concerning spending unit heads, several new variables were included to make the relationships more precise. Education of the wife and the head's father were used to describe the educational standards of the family more completely. Religious preference of the spending unit head was classified in less detail to permit simultaneous analysis of the effect of the frequency of his church attendance on his children's educational attainments. Age of the head was included on the assumption that younger parents would have higher standards for educating their children. Two variables which indicate the geographical mobility of the head were used to test the hypothesis that mobile parents have children with more education. The two variables are North-South migration and urban-rural migration of the spending unit head. Self-employment of the head was omitted from the analysis as it appeared to be relatively unimportant in the analysis of the head's education.

Need-achievement of the spending unit heads was included in the analysis in place of the need-achievement level of the children. Theoretically the parents' level of need-achievement is transmitted to the children by early independence training. Thus parents with high levels of need-achievement should have children who desire to excel in school and who desire a high level of education.

The availability of educational facilities was again indicated by race. The background of the children is approximated by the two mobility variables, although the children were not necessarily educated in the same type of place as that in which the head now lives. The ages and sexes of the children could not be used in this analysis of average education.

The financial ability of the family to educate its children was again indicated by number of children, although in this analysis only living children were included. The highest income the head ever earned replaces his occupation as a more precise measure of the income of the family at the time its children were in school. Age of the head at the birth of his first child indicates the timing of the financial burden of raising a family.

In Table 2-1 the relative importance of each of the indicators used to explain educational achievements of children is shown by the rank of its importance based on the beta coefficient of the indicator. The characteristics appear in roughly the same order as in the analysis of spending unit heads' education.

Table 2-1

Characteristics used to explain average number of grades completed by children (for spending unit heads who have children finished with school)

Characteristics of spending unit heads	Relative importance (Beta coefficients)	Significance (F ratios)
education	.374	32.00**
difference in education of heads and wives	.187	9.33**
occupation	.153	4.16**
number of living children	.122	7.94**
North-South migration	.114	4.16**
attitude toward hard work, and need-achievement score	.104	2.89**
highest income ever earned	.098	1.71
religious preference and church attendance	.096	2.46*
age at birth of eldest living child	.091	2.21*
difference in education of heads and fathers	.087	4.04**
race	.069	7.62**
urban-rural migration	.045	0.65
age	.037	0.73

** significant at a probability level of .01

* significant at a probability level of .05

Taken together, the explanatory variables account for two fifths of the variance in children's completed education, as indicated by a coefficient of multiple determination, R^2, of .414. On the average, children who are finished with school received slightly less than twelve grades of schooling. The standard error of estimate of the result is 1.96 grades. This analysis explains more of the variance than was explained for education of spending unit heads because average education of children has less variance.

Table 2-2

Average completed education: deviations for education
(for spending unit heads who have children finished with school)

Education of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
none	26	-2.68	-1.60
1 - 8 grades	478	-.96	-.68
9 - 11 grades	177	.19	-.12
12 grades	92	.99	.98
12 grades and nonacademic training	50	.94	.65
college, no degree	65	2.08	1.65
college, bachelor's degree	35	2.88	1.89
college, advanced degree	16	3.90	3.06

[a] deviations from grand mean of 11.82 grades

Education of the spending unit head proved to be the most important factor influencing the education of children. The pattern of adjusted deviations in Table 2-2 is much the same as the pattern shown in Table 1-2. Children of parents with no education attain some high school in both cases; children of college graduates attain slightly less than a college degree, while the earlier analysis indicated a slightly lower attainment. Part of the difference in the two results may be attributed to the fact that the data describe a younger generation. The differences may also result from differences in the dependent variables and differences in the population studied. The earlier analysis gave added weight to completion of high school or college, where the present analysis treats education as a linear scale.

Table 2-3

Average completed education: deviations for difference in the education of heads and wives
(for spending unit heads who have children finished with school)

Difference in the education of spending unit heads and wives[a]	Number of cases	Unadjusted deviations[b]	Adjusted deviations[b]
heads have two or more levels less than wives	61	1.34	1.37
heads have one level less than wives	103	-.01	.46
heads and wives have the same level	310	-.48	-.10
heads have one level more than wives	79	1.07	-.06
heads have two or more levels more than wives	67	1.30	-.94
not ascertained	9	.16	.09
heads are single, widowed, or divorced	310	-.42	-.11

[a] Levels of education are defined as:

none
1 - 8 grades
9 - 11 grades
12 grades
12 grades and nonacademic training
college, no degree
college, bachelor's degree
college, advanced degree

[b] deviations from grand mean of 11.82 grades

Average education attained by children is also influenced by the educational achievements of the mother. The more education the wife has relative to her husband, the more education the children attain. Thus the attainments of both parents appears to stimulate education of children. The adjusted deviations in Table 2-3 suggest an asymmetry in the effect of differences in the parents' education. Where the wife has less education than the head, achievements of the children are impeded but not so much as they are advanced when the wife has more education than the head.1/

By definition, certain combinations of head's education and differences in education of head and wife cannot exist. For example, it is impossible for the head to have an advanced college degree and his wife to have more education than he. Also, the two extreme groups on the scale typically include wives or heads with a high school education or more.

1/ L. A. VanDyke and K. B. Hoyt report a strong relationship between the education of both parents and high school drop-outs in Iowa schools. The correlation confirms our finding. In the same study, occupation of the father and whether the student came from a broken home were strongly related to drop-out rates. See L. A. VanDyke and K. B. Hoyt, The Drop-out Problem in Iowa High Schools (State University of Iowa, Iowa State Department of Public Instruction, 1958).

Bowman and Matthews report low socio-economic status of the parents, measured by Warner's scale, is related to drop-outs in Quincy, Illinois. See P. H. Bowman and C. V. Matthews, Motivations of Youth for Leaving School (Washington: United States Office of Education, Cooperative Research Program, September 1960), p. 27.

Table 2-4

Average completed education: deviations for occupation
(for spending unit heads who have children finished with school)

Occupation of spending unit heads[a]	Number of cases	Unadjusted deviations[b]	Adjusted deviations[b]
professionals	59	2.60	.32
managers	39	2.17	.75
self-employed businessmen	62	1.04	.54
clerical and sales workers	100	1.11	.49
craftsmen and foremen	124	.05	-.05
operatives	164	-.48	-.14
unskilled laborers and service workers	219	-1.37	-.56
farmers	103	-.75	-.13
government protective workers	10	1.33	.06
occupation not ascertained; never worked	59	-.96	.13

[a] For the unemployed and retired, occupation refers to the type of work formerly engaged in.

[b] deviations from the grand mean of 11.82 grades

The effect of occupation shown here is slightly different from the effect observed in our earlier analysis. The attainments of children of operatives are more nearly the same as the attainments of children of craftsmen, while the previous analysis showed a rather large difference between the two groups. The differences between this table and the effects shown in Table 1-5 may stem from the fact that the income level of the parents is partly controlled in this analysis.

The maximum annual earnings received by the head of the spending unit were included in the analysis to measure the family's financial ability to educate its children. Though the relationship between level of highest earnings and children's education is somewhat irregular, the deviations are in the expected direction; high incomes are associated with more than the average educational attainment.

The failure of the highest earned income variable to be more strongly related to educational achievements can be ascribed to a number of conceptual and empirical factors. Highest earned income was thought to present the most favorable earning measure for retired persons and others whose incomes have declined since the period when their children were in school. However, the level indicated by maximum earnings may be distorted by reporting errors; the level may reflect atypical earnings during a very brief period; and because of changing price levels the level corresponds to disparate relative income positions for different age cohorts in the sample. As a consequence, peak earnings do not necessarily reflect lifetime earning patterns and the ability of the family to support children in college. Education and occupation may be more closely associated with real relative lifetime earning patterns.

Table 2-5

Average completed education: deviations for number of living children (for spending unit heads who have children finished with school)

Number of living children of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
one	208	.76	.32
two	231	.45	.23
three or four	292	.03	-.07
five or more	208	-1.47	-.54

[a] deviations from grand mean of 11.82 grades

As we observed previously, family size is important in explaining educational attainments. (See Table 1-6.)

Table 2-6

Average completed education: deviations for North-South migration
(for spending unit heads who have children finished with school)

North-South migration of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
grew up in nonsouthern United States, now live:			
in South	121	.24	.07
in non-South	484	.42	.07
grew up in southern United States, now live:			
in South	201	-1.34	-.54
in non-South	38	-1.02	.06
grew up in foreign countries	78	.35	.54
all others[b]	17	-.08	.16

[a] deviations from grand mean of 11.82 grades

[b] includes persons who grew up in more than one region of the country and cases in which region was not ascertained.

We postulated that children of mobile families have somewhat more education than other children because mobile families have broader horizons and are probably more motivated to take advantage of economic opportunities. Children whose parents remained in the South received less education than those whose parents moved to the North. Nearly half of the migrants from South to North are Negroes. For children whose parents grew up in the North geographic mobility does not seem to affect education.

Children of foreign born parents achieve more education than would be expected on the basis of other characteristics of their parents. These findings are not completely consistent with our earlier analysis. Spending unit heads whose fathers grew up in foreign countries did not achieve more than average education. Perhaps the difference results from the different immigration restrictions and differences in national origins of immigrants to the United States since the 1920's.

Table 2-7

Average completed education: deviations for attitude towards hard work and need-achievement score
(for spending unit heads who have children finished with school)

Heads' attitude toward hard work and need-achievement score	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
hard work is equal to or more important than luck; need achievement score is:			
high range	190	.96	.32
middle range	334	.08	.03
low range	169	-.51	-.25
hard work is less important than luck; need-achievement score is:			
high range	34	1.29	.75
middle range	100	-.96	-.32
low range	72	-1.20	-.26
need-achievement score not ascertained	40	-.28	-.26

[a] deviations from grand mean of 11.82 grades

The need-achievement score appears to make an independent contribution to the explanation of the number of grades completed by the children of the spending unit heads. Though the finding appears parallel to the relationship shown in Chapter 1, it is conceptually quite different. In this analysis the level of need-achievement of the spending unit head is related to the attainments of his children. Need-achievement of the parent is clearly a personality attribute that was formed prior to the children's education. Therefore we are much safer in interpreting the relationship as a causal one than we were in the previous analysis, which related the level of need-achievement of the head to his own education. Children of parents who score high on the need-achievement score obtain more schooling than children of parents who do not. The head's attitude towards hard work as a means of getting ahead in the world does not have as strong an effect as before. In spite of the perception that hard work is less important than luck in getting ahead in the world, a small group of persons who score high on the need-achievement index have children who perform well above the expectation based on their parents' other characteristics. The children of this group attain more education than children of the group who feel hard work is important. This is what we would have expected on the basis of our hypothesis relating attitude towards work and educational achievement. For the remaining group it cannot be said that attitude towards work makes any difference in the educational achievement of children. This attitude may, of course, have changed since the time when decisions were being made about children's education.

As need-achievement is a dimension of personality which is formed very early in the life of an individual and affects his income and occupational success, some interest attaches to the unadjusted deviations in Table 2-7. Both the immediate effect of the head's level of need-achievement on the child's early independence training and the indirect impact of need-achievement on the head's own career and success produce the striking

The unadjusted deviations related to the need-achievement scores may reflect differences in the early training and motivation which parents give to their children. Alternate interpretations are equally valid. The need-achievement index may measure the extent to which parents place high values on jobs which require substantial education and little value on those jobs which do not. It may also measure the intelligence of the spending unit heads. In either case the same relationship to educational attainments would be expected.

Table 2-8

Average completed education: deviations for highest income ever earned (for spending unit heads who have children finished with school)

Highest income ever earned by spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
$1 - 449	21	-1.10	.01
$450 - 949	30	-1.74	-.38
$950 - 1949	66	-1.61	-.28
$1950 - 2949	87	-1.03	-.32
$2950 - 4949	178	-.24	.12
$4950 - 7449	224	.34	-.01
$7450 - 9949	52	1.03	.08
$9950 and over	97	1.87	.37
not ascertained	119	-.05	.19
never worked	65	-1.25	-.60

[a] deviations from grand mean of 11.82 grades

Table 2-9

Average completed education: deviations for religious preference and church attendance (for spending unit heads who have children finished with school)

Religious preference and church attendance of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
Catholics; attend church:			
twice a month or more	122	.23	.08
once a month or less	30	-.38	-.13
Fundamentalist Protestants; attend church:			
twice a month or more	211	-.55	.07
once a month or less	150	-1.31	-.55
non-Fundamentalist Protestants; attend church:			
twice a month or more	165	.95	.24
once a month or less	213	.33	.09
non-Christian; no preference	48	.65	-.06

[a] deviations from grand mean of 11.82 grades

Non-Fundamentalist Protestants appear to have better educated children than the Catholics. This finding is consistent with Table 1-9. Families who attend church regularly have better educated children than those who do not. We have no hypothesis as to the underlying cause of this effect.

Table 2-10

Average completed education: deviations for age at birth of first child (for spending unit heads who have children finished with school)

Age of spending unit heads at birth of first child	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
under 18	42	-2.35	-.92
18 - 19	62	-1.12	-.41
20 - 24	344	-.36	-.01
25 - 29	259	.45	.13
30 - 39	188	.76	.15
40 or older	25	.14	.00
no children[b]	19	-.39	-.51

[a] deviations from grand mean of 11.82 grades

[b] includes heads with adopted children and inconsistent responses

Age of the head at the birth of his eldest living child was assumed to measure the extent to which the family exercised some foresight and planning for financial demands of a family. Families who had children late, whether by plan or accident, would also have more savings and opportunity to earn income by having both the husband and the wife in the labor force. The birth of a child shortly after an early marriage limits the wife's ability to work and imposes a burden on the husband's income. Thus the variable employed in Table 2-10 provides an index of both the planning horizons of the family and its ability to accumulate assets for sending children to college. While the deviations shown in the table are not

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highly significant, they are sufficiently systematic to support the hypothesis that the earlier couples have children, the less likely it is that their children will have much education even relative to the low education of their parents.

Table 2-11

Average completed education: deviations for differences in education of heads and fathers (for spending unit heads who have children finished with school)

Differences in the education of heads and their fathers[a]	Number of cases	Unadjusted deviations[b]	Adjusted deviations[b]
heads have fewer levels than fathers	56	.43	.50
heads have the same level as their fathers	674	-.59	-.02
heads have one level more than fathers	129	1.09	-.37
heads have two levels more than fathers	80	2.51	.39

[a] Levels of education are defined as:

0 - 8 grades; education of the father is not ascertained
9 - 12 grades
some college or college degree

[b] deviations from grand mean of 11.82 grades

Children learn from and are motivated by the experiences of their parents. We assume they also recognize the educational achievements of their grandparents and use the experiences of that generation to judge the value of an education. In cases where the grandfather has more education than either parent, the children will achieve more than we would expect on the basis of other factors in the family's background. Where the grandfather has less education than the parents, we should not expect the educational achievements of the children to be affected, although some regression to the accomplishments of the grandfather would not be surprising.

The multivariate analysis confirms part of our hypothesis. Heads who have less education than their fathers have children who are likely to attain half a grade more schooling than the average. Where heads have achieved more education than the grandfather, however, both a positive and a negative deviation from the mean are shown. The negative effect could be interpreted as a regression of all children to an average level of education; the positive effect could be interpreted as the transfer of the parents' extremely high mobility to their children.

Table 2-12

Average completed education: deviations for race
(for spending unit heads who have children finished with school)

Race	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
white	805	.21	.06
nonwhite	134	-1.82	-.52

[a] deviations from grand mean of 11.82 grades

The difference between the unadjusted deviation and the adjusted deviation for the nonwhites implies that parents of nonwhite children are more likely to exhibit other characteristics associated with low educational attainment: the parents are poorly educated and have low paying occupations requiring little education. The difference in educational attainments of white and nonwhite children should not be underrated. The adjusted deviations suggest racial differences in cultural values and the availability of facilities which account for more than half a grade of difference in educational attainments. The unadjusted deviations point out that the cumulative impact of race is to produce an average difference of two years between white and nonwhite groups.

The difference between the findings for spending unit heads and their children is somewhat unexpected. However, many heads grew up at a time when few people went very far in school, particularly in the South. Their children have grown up during a period when most people go to high school. As a consequence, differences in the educational facilities available to whites and nonwhites produced more noticeable differences in the educational attainments of spending unit heads' children.2/

Table 2-13

Average completed education: deviations for urban-rural migration (for spending unit heads who have children finished with school)

Urban-rural migration of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
grew up on farms, now live:			
in rural areas	235	-.97	-.06
in towns 2,500 - 49,999	111	-.77	-.13
in cities 50,000 or more	65	.33	.37
grew up in small towns, large cities, now live:			
in rural areas	131	.26	-.04
in towns or cities	369	.56	.02
all others[b]	28	.04	.03

[a] deviations from grand mean of 11.82 grades

[b] includes persons who grew up in several places and persons for whom locality was not ascertained

Though the effects shown in Table 2-13 parallel the effects shown for moving between North and South, they are so small as to be relatively unimportant.

2/ For a further description of racial inequalities in schooling, see C. Arnold Anderson, "Inequalities in Schooling in the South," The American Journal of Sociology LX (May, 1955), 547-561.

See also Patricia C. Sexton, Education and Income (New York: Viking, 1961).

Table 2-14

Average completed education: deviations for age
(for spending unit heads who have children finished with school)

Age of spending unit heads	Number of cases	Unadjusted deviations[a]	Adjusted deviations[a]
30 - 39	30	-1.57	-.11
40 - 49	186	-.51	-.19
50 - 64	457	.32	.05
65 or older	266	-.03	.05

[a] deviations from grand mean of 11.82 grades

Age of the spending unit heads was included in the analysis on the assumption that older persons who were educated in a period when educational standards were lower than at present, might have less motivation for educating their children than younger parents. This notion is refuted by Table 2-14. Attainments do not vary inversely with the age of the parent.

The small negative deviations for the younger age groups result from the fact that the only young parents included here are those whose children have very little education. Other parents of the same age whose children will have college educations are excluded from the analysis because their children are still in school.

Though the age of the spending unit head was also included in the multivariate analysis of his own education, the role of this variable in the analysis of children's education is conceptually different from its role in the earlier analysis. In the previous analysis, age indicated the period when the head of the spending unit was in school; no variable was included in the analysis which related the head's education to the age of his father. In the present analysis the ages of the children are not included. We have no direct measure of the period when the children were educated. Families vary sufficiently in the age at which they have children and the spacing of their children so that the age of the head bears little relationship to the time when his children were educated. Thus the lack of a relationship between age and children's attainments is a totally different finding from the effect seen in Table 1-3.

Analysis of the average number of grades completed by children of spending unit heads gives results which are almost completely consistent with the analysis of the education achieved by the heads themselves. As the data relate to different generations and to different populations, the consistency between the two sets of findings indicates to general validity of the model which we have used to explain educational attainments.

Chapter #3

PARENTS' ASPIRATIONS FOR EDUCATING THEIR CHILDREN

Insofar as parents are interested in assuring the well-being of their children, it is clear that they must be concerned with the amount of education they can provide for them. This is one reason for studying parents' plans for educating their children.

A second reason for studying aspirations is that an analysis of aspirations may reveal a part of the process that links the characteristics of a family to the education of its children.[1] In Chapter #2 education, occupation, need-achievement, and religious preference of the head all were related to the children's level of completed education. We proposed that these characteristics are related to educational attainments because they are related to underlying desires of the parents to educate their children. We can test this hypothesis directly by studying parents' aspirations for the education of their children.

Parents' aspirations for educating their children are measured by answers to two questions: "How much education do you expect your boys to have before they stop going to school?" and "How much education do you expect your girls to have before they stop going to school?" The questions were asked of all heads of spending units with children of the appropriate sex aged twenty or under. The answers were coded according to the highest level of education mentioned. Thus the relatively few respondents who report, for example, that one boy will go to college but the others will not, are included with those who report that all boys will go to college.

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[1] Another approach to the problem is to study the aspirations of the children themselves. Ernest Haveman and Patricia S. West, They Went to College (New York: Harcourt Brace, 1952) and Ralph F. Berdie, After High School, What? (Minneapolis: University of Minnesota Press, 1954), are examples of such studies.

J. D. Cowhig and C. B. Nair have prepared 1959 data on aspirations of high school seniors and persons not enrolled in school age sixteen to twenty-four. See "Educational Status, College Plans, and Occupational Status of Farm and Nonfarm Youths: October, 1959," Farm Population, Bureau of Census Series ERS (P-27) #30 (August, 1961).

Table 3-1

Expected education
(percentage distribution of spending units with children 20 or under)

Education levels expected by spending unit heads	Index values	For boys	For girls
0 - 8 grades	1	1	0
9 - 11 grades	2	1	1
12 grades	3	23	31
12 grades and nonacademic training	4	1	4
some college	5	4	6
college, bachelor's degree	6	58	49
college, advanced degree	7	4	1
do not know; general responses	-	5	5
not ascertained	-	3	3
Total		100	100
Mean value of index		5.15	4.77
Number of spending units		1128	1069

The responses obtained from our sample suggest that parents are extremely optimistic in their expectations for educating their children. Table 3-1 shows that two thirds of the parents of boys and more than half of the parents of girls expect their children to attain some education beyond high school. These findings are roughly consistent with other studies of parents' aspirations for their children; Roper estimates that 69 per cent of the children presently below eighteen years of age are expected by their parents to go to college.2/ Data from Lansing, Lorimer, and Moriguchi report a similar figure.3/ Both the Lansing and Roper studies report a somewhat higher proportion of children for whom college education is expected than is reported here. The difference may stem from a difference in the manner in which parents' expectations were elicited. In the present study parents were asked a categorical question about all their boys and another question about all their girls. In the Roper and Lansing studies parents were asked a specific question partaining to the education of each child. This somewhat greater emphasis on the education of children may have elicited proportionately more responses of college expectations.

In addition, the data from both the Roper and Lansing studies are presented for individual children, thereby giving more weight to the larger families. The percentages shown in Table 3-1 do not show the proportion

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2/ E. Roper et. al., "Parents' College Plans Study," prepared for the Education Program of the Ford Foundation, 1959.

3/ J. B. Lansing, T. Lorimer, C. Moriguchi; How People Pay for College (Ann Arbor: The Survey Research Center, University of Michigan, 1960).

of children for whom college is expected; they present the proportion of spending units who have children who are expected to go to college. Weighting data from the present study by the number of children produces little difference in the proportion of children for whom college is expected, as is shown below.

Table 3-2

Expected education
(percentage distribution of children 20 or under)

Education expected for children	Per cent of all children
0 - 8 grades	1
9 - 11 grades	1
12 grades	32
12 grades and nonacademic training	3
some college	5
college, bachelor's degree	56
college, advanced degree	2
Total	100
Mean value of index	4.86

The Lansing study estimates that 20 to 40 per cent of the children for whom college is planned will not attend; the mortality in plans depends upon the income and social class of the parents.[4] This suggests that parents' plans for sending their children to college are quite optimistic, especially when the present capacity of colleges is considered. It does not imply, however, that parents' aspirations as expressed in this and other studies, do not represent a real demand for college education. In Chapter 4 we present some data which indicate surprising consistency between parents' aspirations for educating children who are not yet through school and projections which we obtain by extrapolating our analysis of completed education to the educational attainments of the next generation. In Chapter 5 we explore the realism of college plans in more detail. Before taking up the question of the realism of parents' aspirations, however, we consider the determinants of these aspirations.

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[4] See Lansing, Lorimer, and Moriguchi, How People Pay for College, pp. 104-111.

If, as seems reasonable, there is a close association between education attained by children who are finished with school and the educational aspirations of parents for their younger children, the factors which accounted for two fifths of the variance in educational attainment (See Chapter #2.) should also account for much of the variance in parents' aspirations for children who have yet to complete their schooling. To these factors we have added two other independent variables: the ratio of college enrollment to population within each area comprising a primary sampling unit, and the age of the oldest boy or girl twenty or under.

The ratio of college enrollment to population is designed as a measure of the availability of facilities for higher education close to home. This variable may be expected to influence both the cost and accessibility of higher education. In addition, the availability of colleges and universities may create a greater awareness of the importance of education beyond the high school. We did not use this factor in explaining the achieved education of children who had finished school because many of them were educated when the parents were living in different communities.

The level of education which parents expect their children to achieve in many instances may be quite unrealistic. We should expect that as children approach the age when they would go to college, their parents' plans would become more realistic. Hence, the older the children, the lower the expected level of schooling.

In place of the peak earnings, which were taken as a measure of lifetime earning patterns for completed education, current gross disposable income was used in the analysis of parents' expectations. Current income measures the family's present financial situation, which one would expect to influence aspirations for children who are not yet finished with their schooling.

Age of the spending unit head was not included in the analysis of expectations because it showed no relationship to actual attainments. Moreover spending unit heads whose children are still in school are much more homogeneous in age than those whose children are finished with school.

Thus we use fourteen characteristics to explain parents' aspirations. Eleven of these were employed in the analysis of education achieved by children who have finished school. The fourteen characteristics account for about one third of the variance in level of education expected by heads of spending units for their children aged twenty or under. The coefficient of multiple determination obtained for boys was $R^2 = .31$, while for girls it was somewhat lower, $R^2 = .28$. The mean expected level for boys is 5.15, some college; for girls the mean expected level is 4.77, between high school and nonacademic training, and some college.

The relative importance of each of the predictive characteristics is indicated, in terms of beta coefficients and their rank orders in Table 3-3. The standard deviations were 1.41 for boys and 1.45 for girls.

Table 3-3

Characteristics used to explain expected level of education
(for spending unit heads with children 20 or under)

Characteristics of spending unit heads	Relative importance				Significance	
	Rank		Beta coefficients		F ratios	
	Boys	Girls	Boys	Girls	Boys	Girls
education	1	1	.374	.407	32.50**	35.10**
gross disposable income of spending unit	2	4	.190	.130	6.52**	3.13**
difference in education of heads and wives	3	3	.143	.145	5.54**	5.20**
attitude toward hard work and need-achievement score	4	5	.118	.116	3.77**	3.33**
number of living children	5	2	.129	.155	6.77**	8.91**
difference in education of heads and fathers	6	11	.104	.086	5.86**	3.66**
age at birth of eldest living child	7	10	.099	.086	2.66**	1.83
occupation	8	6	.088	.116	1.40	2.22*
ratio of college enrollment to population	9	12	.076	.078	1.34	1.29
urban-rural migration	10	7	.073	.096	1.73	2.73*
North-South migration	11	13	.063	.074	1.29	1.62
age of eldest boy or girl 20 or under	12	14	.047	.036	0.90	0.48
religious preference and church attendance	13	8	.047	.090	0.60	2.00
race	14	9	.005	.088	0.04	11.49**

** significant at a probability level of .01

* significant at a probability level of .05

The education of the spending unit head is far more important than any of the other variables in predicting educational aspirations. Education expected for both boys and girls is a consistently increasing function of the head's education. Even after the influence of the other variables is removed, where the head of the spending unit holds a college degree he expects his boys to complete more than one full level of schooling beyond that expected for sons of heads who had less than four years of high school.

Table 3-4

Expected education: deviations for education of heads
(for spending unit heads with children 20 or under)

Education of spending unit heads	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
none	10	5	-.93	.00	-.13	-.39
1 - 8 grades	309	313	-.91	-.82	-.66	-.70
9 - 11 grades	269	253	-.24	-.33	-.36	-.40
12 grades	191	162	.24	.27	.21	.30
12 grades and non-academic training	105	113	.51	.36	.53	.38
college, no degree	130	110	.71	.73	.66	.83
college, bachelor's degree	87	85	.87	1.07	.68	.81
college, advanced degree	27	28	1.08	1.12	.75	.86

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

The influence of the college experience of the head appears to be somewhat greater with respect to educational expectations held for girls than for boys. At other levels of education of the head the difference in expectations for boys and girls is insubstantial. This may suggest that the college experience of parents tends to give them a greater appreciation of the nonvocational benefits of higher education. At any rate the fact that the spending unit head has attended college appears to lead to more nearly equal expectations for the education of girls and boys.

Table 3-5

Expected education: deviations for differences in education of heads and wives
(for spending unit heads with children 20 or under)

Difference in education of spending unit heads and wives[b]	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
heads have two or more levels less than wives	112	99	-.02	-.07	.34	.30
heads have one level less than wives	185	173	-.05	.05	.19	.34
heads have same level as wives	372	345	-.14	-.27	.01	-.05
heads have one level more than wives	170	157	.28	.32	-.15	-.09
heads have two or more levels more than wives	137	143	.51	.57	-.37	-.31
education of wives not ascertained	4	3	-.97	.68	-.69	-.57
heads are single, widowed, or divorced	148	149	-.51	-.38	.05	-.05

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

[b] levels of education are defined as:

none
1 - 8 grades
9 - 11 grades
12 grades
12 grades and nonacademic training
college, no degree
college, bachelor's degree
college, advanced degree

The education expected for children appears to be a function not only of the education of the head of the spending unit, but also of that of his wife. In those cases in which the wife has had substantially more education than the head the children tend to be expected to get more education than might be indicated on the basis of head's education. The converse is true when the head has substantially more education than his wife.

Table 3-6

Expected education: deviations for gross disposable income (for spending unit heads with children 20 or under)

Gross disposable income of spending units	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
$1 - 499; negative income	10	11	-.07	-.17	-.01	-.10
$500 - 999	14	10	-1.10	-.68	-.48	-.05
$1000 - 1999	82	87	-1.50	-1.07	-.83	-.58
$2000 - 2999	118	121	-1.00	-.69	-.46	-.29
$3000 - 4999	234	249	-.32	-.23	-.12	-.08
$5000 - 7499	344	304	.11	.05	.06	.07
$7500 - 9999	199	156	.44	.36	.19	.18
$10,000 - 14,999	101	103	.62	.59	.29	.15
$15,000 and over	25	28	1.13	.99	.49	.20

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

Gross disposable income includes the usual elements of money income and also estimates of income which the family earns from home production and the imputed rental value of its home. An estimate of federal income tax is deducted.

The current gross disposable income of the spending unit is the second most important determinant of the level of education expected for boys. Its importance, however, is considerably smaller with respect to girls. Once the other variables have been taken into account, the level of education expected for boys in spending units with incomes between \$1,000 and \$1,999 is almost one and one-half levels below that expected by heads of spending units with incomes of \$15,000 and over. The spread for girls, however, is only half as wide.

The importance and consistency of the effect of income on aspirations contrasts with the irregular relationship between peak earnings of the head and the average completed education of his children. (See Table 2-8.) The fact that income affects aspirations lends support to our earlier argument that the lack of relationship with completed education is probably a result of the fact that peak earnings are a relatively crude measure of real earnings at the time decisions were being made about children's education.

Table 3-7

Expected education: deviations for attitude toward hard work and need-achievement score (for spending unit heads with children 20 or under)

Head's attitude toward hard work and need-achievement score	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
hard work is equal to or more important than luck; need-achievement score is in:						
high range	282	261	.45	.42	.22	.20
middle range	401	389	.09	.06	.00	.03
low range	198	183	-.32	-.29	-.13	-.15
hard work is less important than luck; need-achievement score is in:						
high range	53	44	-.04	.20	-.06	.17
middle range	93	97	-.56	-.43	-.37	-.27
low range	70	63	-.76	-.88	-.01	-.35
need-achievement score not ascertained	31	32	-.42	-.20	-.17	.00

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

The adjusted deviations of Table 3-7 indicate an effect similar to the effect of need-achievement on educational attainments. However, the evidence does not support the hypothesis as consistently in this instance as it did in our earlier analysis. Expectations for boys of parents who feel luck is more important do not appear to vary as systematically with the need-achievement score; parents with low scores on the need-achievement and the perception that luck is an important factor in getting ahead have somewhat higher aspirations than we should expect after the multivariate adjustments are completed.

Table 3-8

Expected education: deviations for number of living children (for spending unit heads with children 20 or under)

Number of living children of spending unit heads	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
one	145	147	.45	.43	.25	.31
two	324	297	.25	.30	.10	.15
three or four	439	406	.00	-.03	-.02	-.04
five or more	219	217	-.83	-.78	-.35	-.40

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

The number of children of the head is a major factor influencing the level of education expected for children. This factor appears to operate as a constraint, particularly with respect to aspirations for the schooling of girls. As measured by the beta coefficients, in the case of girls it is second in importance only to the education of the head of the spending unit. Other things being equal, girls and boys in families with one or two children are expected to obtain a substantially higher level of education than those who are members of families having five or more children.5/

5/ Though number of children affects aspirations, aspirations to send children to college do not appear to affect family planning according to Charles F. Westoff, Robert G. Potter, Jr., Philip G. Sagi, and Elliot G. Mishler; Family Planning in Metropolitan America V (Princeton: Princeton University Press, 1961), p. 256.

The only other characteristic of spending unit heads for which we have a statistically significant relationship with expected education for both boys and girls is the difference in education of the head and his father.

Table 3-9

Expected education: deviations for difference in education of heads and fathers (for spending unit heads with children 20 or under)

	Number of cases		Unadjusted deviations[b]		Adjusted deviations[b]	
Difference in education of spending unit heads and fathers[a]	Boys	Girls	Boys	Girls	Boys	Girls
heads have fewer levels than fathers	67	70	.14	-.04	.49	.26
heads have same level as fathers	640	615	-.37	-.35	.03	.07
heads have one level more than fathers	298	272	.38	.41	-.15	-.14
heads have two levels more than fathers	125	113	.73	.76	-.04	-.16

[a] levels of education are defined as:

0 - 8 grades; education of father not ascertained
9 - 12 grades
some college or college degree

[b] deviations from grand mean: 5.15 for boys, 4.77 for girls

Spending unit heads who had less education than their fathers appear to base their aspirations for their children in part on the experience of their fathers. Similarly, if the parents achieved more education than their fathers this fact lessens parents' aspirations for their children.

Table 3-9 clearly suggests a pattern of regression that was not evidenced in our analysis of education attained by children. (See Table 2-11.) The adjusted deviations suggest that once the family has had experience with education beyond grade school, aspirations for educating children are substantailly increased, even though the head does not attain as much education as his father.

Table 3-10

Expected education: deviations for age of heads at birth of eldest living child (for spending unit heads with children 20 or under)

Age of spending unit heads at birth of eldest living child	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
under 18	26	25	-1.16	-.83	-.22	-.14
18 - 19	68	80	-.76	-.63	-.30	-.37
20 - 24	429	371	-.01	-.11	.03	.00
25 - 29	343	334	.14	.11	.08	.05
30 - 39	223	214	.26	.35	.02	.06
40 or older	27	35	-1.04	-.15	-.64	-.15
no children[b]	12	10	-.67	-.75	-.43	-.62

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

[b] includes heads with adopted children and inconsistent responses

Parents' aspirations for the education of their boys are associated with the age of the spending unit head at the time his eldest living child was born. As we suggested earlier, birth of the first child when the spending unit head is under twenty may indicate an inability to plan adequately for the future. Such heads of spending units may frequently find themselves under heavy financial pressure at the outset of their marriages, pressure which appears to lead to less ambitious plans for the education of their children than their other characteristics would suggest. The findings in Table 3-10 reiterate our findings about educational levels attained by children whose schooling has been completed. (See Table 2-10.)

Relationships between education expected for boys and occupation, urban-rural migration, North-South migration, religious preference and church attendance, age of the eldest boy under twenty, race and availability of educational facilities were not statistically significant. However, our hypotheses relating education expected for girls to occupation, urban-rural migration, and race were supported. Tables 3-11 through 3-17 present, for the reader's information the data for all of the results having to do with the foregoing seven characteristics, whether or not the beta coefficients are statistically significant. Interest in these tables centers on the differences between the adjusted deviations and on some results that appear to be both highly informative and statistically significant with a more precise test.

Table 3-11

Expected education: deviations for occupation of head (for spending unit heads with children 20 or under)

Occupation of spending unit heads[a]	Number of cases		Unadjusted deviations[b]		Adjusted deviations[b]	
	Boys	Girls	Boys	Girls	Boys	Girls
professionals	111	106	.78	.90	.09	.08
managers	59	51	.69	.91	.07	.48
self-employed businessmen	76	67	.31	.32	.11	.14
clerical and sales workers	120	123	.52	.44	.23	.11
craftsmen and foremen	206	186	.06	-.18	-.04	-.15
operatives	236	217	-.31	-.36	-.05	-.08
unskilled laborers and service workers	173	172	-.85	-.72	-.19	-.15
farmers	95	92	-.68	-.29	-.12	.20
government protective workers	27	34	.17	.23	-.08	-.20
not ascertained; never worked	25	21	-.33	-.38	.20	.08

[a] For the unemployed and retired, occupation refers to the type of work formerly engaged in.

[b] deviations from grand mean: 5.15 for boys, 4.77 for girls

Sizeable differences between unadjusted and adjusted deviations appear in the relationship between occupation of the spending unit head and education expected for his boys. The average level of education expected for the sons of professionals is about the level of a college degree (5.15 plus unadjusted deviation of .78), compared with the average of some college expected for all boys. But examination of the adjusted deviation of .09

for this group shows that the fact that the head is a professional contributes little to the level of education expected for boys when education of the head, gross disposable income of the spending unit, and the other determinants of aspirations are also taken into account; much the same is true for all other occupational groups.6/

However, the association between the occupation of the head of the spending unit and educational aspirations for his girls is statistically significant, indicating some contrast in expectations held for girls and expectations held for boys. (See Table 3-11.) Farmers appear to expect about the same level of education for both girls and boys. This level is greater than the average for all girls, less than the average for all boys. Perhaps farmers regard their sons as being likely to continue in farming where educational requirements may be less than they are off the farm, while they expect their daughters to leave the farm and require more education. Alternatively, or as a complementary influence, we may posit that opportunities for working on the farm are greater for boys than for girls, so that the opportunity costs of keeping girls in school are less than they are for boys. However, no readily apparent parallel explanation accounts for the substantially greater positive influence shown for girls whose fathers are managers.

6/ In contrast to the finding here, Kahl reports that the father's occupation influences boys' plans to go to college. Kahl shows that the proportion of a sample of high school boys in the Boston area who expected to go to college is strongly related to both the fathers' occupations and the boys' scores in intelligence tests.

See Joseph Alan Kahl, The American Class Structure (New York: Rinehart, 1957), p. 283.

Table 3-12

Expected education: deviations for the ratio of college enrollment to population (for spending unit heads with children 20 or under)

Ratio of college enrollment to local population[a]	Number of cases		Unadjusted deviations[b]		Adjusted deviations[b]	
	Boys	Girls	Boys	Girls	Boys	Girls
no college in the area	267	262	-.41	-.38	-.13	-.05
under 1.0 per cent	103	95	.09	-.10	.04	-.01
1.0 - 1.4 per cent	154	164	-.01	-.03	.05	.00
1.5 - 1.9 per cent	217	201	.26	.13	.12	-.07
2.0 - 2.9 per cent	121	122	.13	.26	-.10	.06
3.0 - 3.9 per cent	90	74	.18	.13	-.14	-.18
4.0 - 4.9 per cent	84	72	.28	.44	.09	.18
5.0 per cent and over	92	79	-.38	.05	.13	.33

[a] College enrollments were obtained from the 1959 Education Directory; population totals were estimated from Census figures for 1950 and 1958. Each spending unit head is classified according to the ratio appropriate to the standard metropolitan area or county in which he lives.

[b] deviations from grand mean: 5.15 for boys, 4.77 for girls

Though some differences in aspirations are associated with the availability of college facilities, nearly all the variation can be accounted for by differences in the other characteristics of families living in these areas.

Table 3-13

Expected education: deviations for urban-rural migration (for spending unit heads with children 20 or under)

Urban-rural migration of spending unit heads	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
grew up on farms, now live:						
in rural areas	244	225	-.65	-.53	-.18	-.24
in towns 2,500 - 49,999	88	89	-.22	-.06	.24	.09
in cities 50,000 or more	47	43	-.28	-.07	.04	.26
grew up in small towns, large cities, now live:						
in rural areas	228	205	.24	.06	.02	-.09
in towns or cities	498	486	.21	.18	.02	.09
all others[b]	23	21	-.05	.07	-.04	.05

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

[b] includes persons who grew up in several places and persons for whom locality was not ascertained

Heads who grew up on farms and still live in a rural area expect their daughters to acqure significantly less education than do heads who grew up on farms and now live in large cities. It makes little difference where the parent lives now, however, if he did not grow up on a farm.

It is somewhat surprising that urban-rural migration affects aspirations for girls when its impact on attainments is insignificant. (See Table 2-13.)

Table 3-14

Expected education: deviations for North-South migration (for spending unit heads with children 20 or under)

North-South migration of spending unit heads	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
grew up in the nonsouthern United States, now live:						
in South	157	151	.17	.27	.02	.08
in non-South	625	583	.11	.07	-.05	-.03
grew up in southern United States, now live:						
in South	241	229	-.31	-.23	.12	.03
in non-South	61	54	-.53	-.59	-.11	-.27
grew up in foreign countries	37	39	-.04	.15	.18	.25
all others[b]	7	13	.63	.70	.57	.57

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

[b] includes persons who grew up in several regions of the country and cases in which region was not ascertained

Similarly, it is curious that North-South migration is significantly related to attainments but does not affect aspirations. (See Table 2-6.) The difference may again reflect the difference in average age of the spending units with children finished with school and those with children still in school. Children who are now finished with school may have been educated at a time when educational facilities in southern parts of the United States were less adequate than they are today.

Table 3-15

Expected education: deviations for age of eldest boy or girl 20 or under (for spending unit heads with children 20 or under)

Age of eldest boy or girl of the spending unit head	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
under 10	539	518	.18	.13	.04	.02
10 - 12	204	187	-.07	.02	.04	.05
13 - 15	179	165	-.18	-.07	-.04	.00
16 - 17	121	123	-.05	-.30	-.02	-.10
18 - 20	85	76	-.51	-.33	-.21	-.11

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

Though the unadjusted deviations indicate that expectations decline with increasing age of the eldest child as we anticipated, the adjusted deviations are not significantly different.

Table 3-16

Expected education: deviations for religious preference and church attendance of heads (for spending unit heads with children 20 or under)

Religious preference and church attendance of spending unit heads	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
	Boys	Girls	Boys	Girls	Boys	Girls
Catholics, attend church:						
twice a month or more	96	183	.06	-.02	-.05	-.13
once a month or less	46	48	-.13	-.59	-.02	-.39
Fundamentalist Protestants, attend church:						
twice a month or more	252	246	-.21	-.08	.00	.10
once a month or less	181	168	-.51	-.49	-.11	-.07
non-Fundamentalist Protestants, attend church:						
twice a month or more	198	183	.35	.37	.05	.08
once a month or less	206	191	.14	.13	.03	.03
non-Christians; no preference	49	50	.55	.57	.18	.25

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

While the set of deviations by religious preference and church attendance is not statistically significant, it is interesting that more frequent attenders expect to provide more education for their children. This agrees with results for completed education of children. (See Table 2-9.) On the other hand, the expectations of Catholics are lowest, particularly with respect to their daughters.

Table 3-17

Expected education: deviations for race
(for spending unit heads with children aged 20 or under)

	Number of cases		Unadjusted deviations[a]		Adjusted deviations[a]	
Race	Boys	Girls	Boys	Girls	Boys	Girls
white	952	897	.09	.03	.00	-.05
nonwhite	176	172	-.67	-.23	-.02	.34

[a] deviations from grand mean: 5.15 for boys, 4.77 for girls

Table 3-17 demonstrates clearly the importance of disentangling the influences which affect educational expectations.

Unadjusted deviations show that whites and nonwhites have substantially different expectations for educating their boys. The difference appears to be associated with differences in the education, income, and other characteristics of the two groups as the adjusted deviations contribute nothing to an explanation of parents' aspirations.

However, the two groups agree more closely in their expectations for educating girls. When expectations are adjusted for education, income, and other differences, it becomes clear that nonwhites have higher aspirations for girls than would be expected.

The large positive deviation for nonwhite girls results from our assumption that parents expect different levels of education for their girls and boys. Table 3-17 shows that whites, who are probably referring to differences in education at the college level, make some distinction between girls and boys; nonwhites, who are discussing high school educations for their children, do not make such distinctions. The positive deviation for nonwhite girls brings their expected level of education up from the girls lower grand mean to within .02 of the expected level for nonwhite boys. In any event, it seems safe to conclude that the lower level of educational aspirations of nonwhites, like their lower level of completed education, is explained by their lower incomes, education, and so forth, rather than by differences between racial groups as such.

Chapter #4

SOME IMPLICATIONS FOR THE DEMAND OF EDUCATION

The data from the preceding chapters can be used in a number of ways to predict future levels of education in the United States. First one may consider the varying degrees of education completed by people of different ages. It is possible to extrapolate these as trends for the next few generations and make an estimate of the number of people who will go to high school, go to college, and also the projected distribution of the population according to education level. But this same kind of thing can be done with more precision from other data such as Census material.1/

A second type of projection can be developed by making use of the various multivariate analyses, in particular the analysis of completed education of children. The model on which the multivariate analysis is based allows one to estimate for any individual the amount of education he will get, according to a series of adjustments for each characteristic used in the analysis. Some of the classifications used in the analysis are things for which the population distribution will change in the future. For instance, the distribution of the income level of parents or of the education level of the parents can be forecasted by making trend extrapolations. By applying the coefficients of the multivariate analysis one can determine what effect these shifts will have on the average level of completed education of the children.

1/ United States Department of Commerce, Bureau of Census, "Population Characteristics," Current Population Reports, Series P - 20.

The analysis of completed education of children of the head includes all living children, but is based on spending unit heads who may have different numbers of children. Hence, even with the population distributions of all the independent variables in our analysis from Chapter #2 a biased estimate of the average level of completed education of children would result. It is necessary to estimate the average number of children for each group of families as well as the average level of completed education. For a description of educational aspirations weighted by family size see Table 3-2.

A third possibility arises from the fact that one of the major determinants of the level of education of any individual is the education of his father. Thus, the probability of an individual going to college is, in part, a function of whether or not his father went to college. As each generation follows the last we can think of the transmission of education from father to son as a series of conditional probabilities. One can then take the distributions of education of an older and a younger generation, and apply the shifts in such a matrix to predict the educational distribution of the third generation. Then, it is possible to take this distribution of the third generation, and apply the same matrix to determine the educational distribution of the following generation. This can be done separately for each age group. Here again one must be careful because families are of different sizes. Furthermore, there are several relationships between the education of one generation and the education of the next that can be used for this purpose: the relationship of the education of the head to that of his father, the relationship of the heads' education and the completed education of his children, or the relationship between the heads' education and the education he expects for his children who have not finished school.

Table 4-1 shows a relationship between the education of the fathers of spending unit heads under thirty-five years of age and the education of these spending unit heads. By substituting for the educational distribution of all heads' fathers the distribution of all heads according to education, we think of the heads as a new set of fathers. Then it is possible to estimate the distribution of education among their children.

Table 4-1

Education of spending unit heads within education of their fathers (percentage distribution of spending unit heads under 35)

	Education of heads' fathers					
Education of spending unit heads	0 - 8 grades	9 - 11 grades	12 grades	some college	Total	Estimated education received by children of spending unit heads under 35[a]
0 - 8 grades	21	6	2	1	15	6
9 - 11 grades	29	14	16	8	23	15
12 grades	31	46	32	22	32	32
some college	19	34	50	69	30	47
Total	100	100	100	100	100	100

[a] The estimated distribution of education is obtained by multiplying the proportion of the row in Table 4-1 by the proportions in the total column and adding the products. In other words (19 x 15) + (34 x 23) + (50 x 32) + (69 x 30) = 47 per cent, which is an estimate of the number of college graduates among the next generation. Estimates of the proportions who will be high school graduates and so forth are obtained in the same fashion.

The last column of Table 4-1 is quite consistent with the Office of Education's projection that roughly 44 per cent of all persons between the ages of eighteen and twenty-one will be in college by 1970.2/

With the analysis of spending unit heads the problem of differing family sizes does not enter because the analysis started with the heads and related their educations to that of their fathers. However, to the extent that spending unit heads differ from the rest of the population any projections for the entire population are biased if they are based on spending unit heads.

A crucial problem for any extrapolation in the future, however, is not simple mechanical extrapolation of either the past trends or of past transition probabilities. It is the extent to which people's attitudes, plans, and aspirations are likely to change in the future. The motivations, values, and educational attainments of parents clearly imply increasing educational attainment and more widely held aspirations for college education for the next generation. The relationship between education, income, occupation, and the educational attainments of the next generation necessitates this conclusion. Higher incomes, more professionals in the labor force, rising levels of education will combine to increase the motivation of each succeeding generation to acquire more education and will produce a more highly educated population. To what extent this is a limited process is an interesting question. Educational levels will not continue indefinitely to increase because there is little need for training beyond a college degree for any but those who intend to go into certain professions. (See Table 4-2.)

2/ Dexter M. Keezer, ed., Financing Higher Education (New York: McGraw-Hill, 1960), p. 15.

It is also clear that from the close relationship between the education of one generation and the education of the next in the same family that there is some perpetuation of poverty through low educational levels and there is perpetuation of high class status through continuation of high levels of education. However, as more and more people finish high school and go to college, these differentials become narrowed and their importance becomes much smaller. Continuing to use the conditional probabilities described in Table 4-1, one reaches a state of equilibrium within a few generations. Although the educational distribution stabilizes, the shifting of various families between groups continues.

Table 4-2

Education of descendants of spending unit heads under 35

Education	Great-grandchildren of spending unit heads under 35	Great-great grand-children of spending unit heads under 35
0 - 8 grades	3	2
9 - 11 grades	12	12
12 grades	28	28
some college	57	58
Total	100	100

We have looked at education as a transmitter of economic status from one generation to another. It is true, of course, that education has many other aspects and many other purposes. We do not discuss the crucial problems of necessary changes in the content of education as larger and larger numbers of people go further in school. Some way must be found to teach things that are useful without depreciating the value of education.

How unrealistic are these expectations about education for children? Education is a highly valued commodity; it is also an expensive one in terms of the out-of-pocket costs, and of the earnings foregone by a person while he is in school. Consequently, it is of some importance to know how realistic people's expectations are. In the next chapter we turn to an analysis of how people expect their children's college educations to be financed.

Chapter #5

PLANS FOR SENDING CHILDREN TO COLLEGE

Since the decisions to attend a public rather than a private college, and to live at home or at the college play so large a role in determining how much a college education costs, we are interested in discovering as much as possible about factors that may influence such decisions. A related set of findings involves the extent to which parents expect their children to support themselves in college. Insofar as we may have answers to these questions, we should be able to cast further light on the realism of parents' aspirations for the college education of their children, and to gain some insights into the problems which will be encountered in implementing them.

Realism of expectations can be assessed by comparing families' education plans with their financial resources. Families with low incomes and low savings are less likely to realize plans for children's college educations than are more prosperous families. Another evidence of poor planning is the proportion of parents who expect their children to go to college but have no specific plans for implementing these expectations.

The choice of public or private colleges

Spending unit heads' expectations about whether their children will attend public or private colleges are related to income, religion, and other factors. In Table 5-1 we find that the proportion of parents who indicated that their children would attend private colleges is approximately twice as large for those with incomes in excess of $10,000 as for those with incomes under $3,000. This is not surprising in view of the fact that attendance at private colleges is more costly. The high proportion of indefinite answers in the low income group is significant as an indication of lack of planning.

Table 5-1

Plans to send children to state colleges within gross disposable income of spending units (percentage distribution of spending unit heads who expect children to attend college)

Plans to send children to state colleges	under $3000	$3000-4999	$5000-7499	$7500-9999	$10,000 and over	All spending unit heads who expect children to attend college
some or all will attend state colleges	87	83	78	75	70	78
all will attend private colleges	13	17	22	25	30	22
Total	100	100	100	100	100	100
Per cent with no plans	32	24	24	20	23	24
Number of spending unit heads in group	138	229	355	217	169	1108

A second factor that is clearly related to the choice between private and public colleges is religious preference, as is indicated in Table 5-2. Here we find little difference among Fundamentalist and non-Fundamentalist Protestants, but a smaller proportion of Catholics who attend church regularly expect their children to go to public colleges.

Our sixty-six primary sampling areas were classified into four groups, according to whether they contained private colleges, public colleges, both, or neither, indicating the availability of the two types of institutions. In those areas in which there are only public colleges, more than nine tenths of the parents expect their children to attend public rather than private colleges. (See Table 5-3.) Similarly, when there is no college of either kind in the area, the choice lies to a clearly disproportionate extent with the public college, suggesting, perhaps, that for many parents who would prefer the private college the additional costs of having the student live away from home preclude sending him to a private college. On the other hand, where there is only a private college, and where both private and public colleges exist, the choice lies with the public college to a lesser extent. The similarity in the proportions shown in the second and fourth columns of Table 5-3, relating to these two types of areas, is somewhat puzzling and not readily explainable.

Other characteristics did not seem to affect plans to send children to public or private schools. There is no discernable pattern related to the extent to which the children are expected to support themselves in college or the expected sources of money for colleges expenses.

Table 5-2

Plans to send children to state colleges
within religious preference and church attendance
(percentage distribution of spending unit heads
who expect children to attend college)

	Religious preference and church attendance							
	Catholics; attend:		Fundamentalist Protestants; attend:		non-Fundamentalist Protestants; attend:			
Plans to send children to state colleges	twice a month or more	once a month or less	twice a month or more	once a month or less	twice a month or more	once a month or less	non-Christian, no preference	All spending unit heads who expect children t attend college
some or all will attend state colleges	64	80	79	87	79	83	71	78
all will attend private colleges	36	20	21	13	21	17	29	22
Total	100	100	100	100	100	100	100	100
Per cent with no plans	23	31	25	28	22	22	28	24
Number of spending unit heads in groups	191	46	235	133	216	226	61	1108

Table 5-3

Plans to send children to state colleges within availability of colleges in area (percentage distribution of spending unit heads who expect children to attend college)

	Availability of colleges in area[a]				
Plans to send children to state colleges	no college in area	private college in area	public college in area	public and private colleges in the area	All spending unit heads who expect children to attend college
some or all will attend state colleges	85	74	94	73	78
all will attend private colleges	15	26	6	27	22
Total	100	100	100	100	100
Per cent with no plans	21	25	13	28	24
Number of spending unit heads in group	220	201	125	562	1108

[a] area is a primary sampling unit

The preceding tables have dealt with proportions of spending unit heads. If we turn now to proportions of children, we find that of the children who are definitely expected to attend either a public or a private college, 70 per cent are expected to attend a public college. This compares with the fact that in the fall of 1959 public colleges and universities accommodated 60 per cent of the American college enrollment.1/ Our data do not permit precise comparisons with present enrollment ratios, but they show that not only will the number of children attending college increase in the future, but that public colleges will be expected to accommodate a larger proportion of the total enrollment.

The choice of living at home or at colleges

Another factor influencing the cost of going to college is whether or not the student lives away from home. Sixty-one per cent of children whose parents have definite plans for their going to college will live away from home while attending college. A 1960 survey involving 275 college students revealed that approximately two thirds of the students were living away from home.2/ Thus the expectations of parents with respect to where their children will live while attending college do not differ appreciably from the experience of students in 1960.

Whether the children are expected to live at home or go away to college depends in large part upon the income of the spending unit of which they are members. Forty per cent of heads of spending units with gross

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1/ United States Department of Health, Education, and Welfare, Office of Education, Opening (Fall) Enrollment in Higher Education, 1959: Analytic Report, (1960), p. 17.

2/ John B. Lansing, Thomas Lorimer, Chikaski Moriguchi; How People Pay for College, p. 19.

disposable income under $5,000 expect that all of their children who will go to college will live at home, whereas for the group with $10,000 and over the proportion is only 17 per cent. (See Table 5-4.) The proportion who have made no plans decreases as income rises.

The availability of a public or private college in the area also exerts a major influence upon parents' plans for their children. (See Table 5-5.) The very substantial difference between areas with only public and only private colleges in the proportion who expect children to live at home is undoubtedly due in part to differences in cost. A local public college offers the combined attraction of low tuition and saving through the opportunity to live at home, whereas the higher tuiton of a private institution will offset at least a part of the costs of living away from home in order to attend a public college or university.

Table 5-4

Plans for children to live at home while in college within gross disposable income of spending units (percentage distribution of spending unit heads who expect children to attend college)

Plans for children to live at home while in college	Gross disposable income of spending units					All spending unit heads who expect children to attend college
	under $3000	$3000-4999	$5000-7499	$7500-9999	$10,000 and over	
all will live at home	44	39	37	30	17	33
some will live at home; some away	4	4	9	11	14	9
all will live away from home	52	57	54	59	69	58
Total	100	100	100	100	100	100
Per cent with no plans	32	32	29	22	17	27
Number of spending unit heads in group	138	229	355	217	169	1108

Table 5-5

Plans for children to live at home while in college within availability of colleges in area (percentage distribution of spending unit heads who expect children to attend college)

Plans for children to live at home while in college	Availability of colleges in area[a] no college in area	 private college in area	 public college in area	 public and private college in the area	All spending unit heads who expect children to attend college
all will live at home	9	16	51	46	33
some will live at home; some away	4	13	16	8	9
all will live away from home	87	71	33	46	58
Total	100	100	100	100	100
Per cent with no plans	16	24	27	32	27
Number of spending unit heads in group	220	201	125	562	1108

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[a] area is a primary sampling unit

Table 5-6 further emphasizes the importance of the availability factor by showing the proportion of the local population which is attending college. It adds to the evidence suggesting that the fulfillment of parents' aspirations for the higher education of their children will depend for many of them on the extent to which colleges are available within easy reach of the potential student's home, enabling him to avoid the extra costs of room and board outside the parental residence.

As in the choice between the public and private college, the age of the eldest child in the family appears to exert little influence on the expectations that the potential student will live at home or at college. Even the incidence of indefinite responses is not reduced appreciably as the eldest boy or girl in the family approaches college age.

The principal conclusion that emerges from this section is that the extent to which parents' aspirations for the college education of their children will be fulfilled in the next ten to twenty years will depend in part upon the availability of low-tuition public institutions serving the local community. Aspirations for the higher education of children are found at income levels which may not, realisticially, permit financing higher education either if the student must live away from home or pay the tuition charges required by private institutions. Present indications are, however, that public facilities serving primarily a commuter population do not now exist to an extent adequate to meet the expressed demand. Alternatively, of course, the need may be met, at least in part, by a vastly expanded program of public and private aid to students. But the overall costs of such an approach would appear to be very much greater thanthe costs of bringing the institution to the student.

Table 5-6

Plans for children to live at home while in college within ratio of college enrollment to local population (percentage distribution of spending unit heads who expect children to attend college)

Plans for children to live at home while in college	Ratio of college enrollment to local population[a]						All spending unit heads who expect children to attend college
	no college in area	0.1-0.9%	1.0-1.9%	2.0-2.9%	3.0-3.9%	4.0% and over	
all will live at home	9	29	35	33	60	49	33
some will live at home; some away	4	13	9	14	7	12	9
all will live away from home	87	58	56	53	33	39	58
Total	100	100	100	100	100	100	100
Per cent with no plans	16	26	29	39	21	30	27
Number of spending unit heads in group	220	102	387	140	91	168	1108

[a] within primary sampling units

Sharing of college expenses by parents and children

Only 3 per cent of parents who plan college for their children expect the children to finance their college education entirely. Almost 60 per cent of the parents expect their children to contribute somewhat to their own support. Fifteen per cent of our respondents indicated that they would expect their children to contribute nothing, while the remaining quarter could not answer the question.

Income, savings, and number of children in the family are clearly associated with the extent to which parents expect children to support themselves in college. The higher the gross disposable income of the spending unit, the less the head expects his children to contribute for their college education. (See Table 5-7.) For those with incomes over $10,000, more than half anticipate that the children will contribute little or nothing to their own college expenses. This, of course is not surprising; what is surprising is the fact that as many as 22 per cent of heads of spending units with incomes of less than $3,000 expressed the same anticipation. This may be attributable to the fact that the incomes of some people in this group were temporarily low in 1959, because of illness, unemployment, business losses, and so forth -- or it may simply represent less realistic aspirations. Parents with incomes under $3,000 are less likely to have plans about any of the details of their children's college educations, a poor omen for the realization of their expectations. (See also Tables 5-1 and 5-4.)

Table 5-7

Extent to which children will support selves in college within gross disposable income of spending units (percentage distribution of spending unit heads who expect children to attend college)

Extent to which children will support selves in college	Gross disposable income of spending units					All spending unit heads who expect children to attend college
	under $3000	$3000-4999	$5000-7499	$7500-9999	$10,000 and over	
completely or mostly	38	19	14	16	9	16
somewhat	40	49	42	38	34	41
a little or not at all	22	32	44	46	57	43
Total	100	100	100	100	100	100
Per cent with no plans	39	31	26	15	17	24
Number of spending unit heads in group	138	229	355	217	169	1108

Ability to support children in college is a function of both income and number of children. This finding is clearly illustrated in Table 5-8. Here we find, as a general rule, that within each broad income group the extent of expected contributions from children increases for larger families. The number of children is important for groups having incomes of less than $10,000. For those with incomes of $10,000 and over it does not appear to make a substantial difference.

The better the education of the head, suggesting increasing ability to finance such things as higher education, the less parents expect that their children will contribute towards college expenses. Except for spending unit heads with no education or grade-school educations, having a child close to college age does not lead to a less optimistic view of the prospects for contributing toward the costs of sending children to college.

The savings of the spending unit also are related to children's expected contributions to their college expenses. Table 5-9 suggests that heads of spending units with current savings over $5,000 less frequently anticipate their children supporting themselves in college than do those with savings under $5,000.

The presence of a working wife or one who has work experience shows no particular relationship to the extent to which the head expects his children to meet their college expenses. However, unmarried spending unit heads expect, to a disproportionately large extent, that the children will meet their own college expenses. The frequency with which they expect children to support themselves, either completely or with only small help from the family, is double the average for all spending unit heads.

Table 5-8

Extent to which children will support selves in college
within gross disposable income of spending units and number of minor children
(percentage distribution of spending unit heads who expect children to attend college)

Extent to which children will support selves in college	Gross disposable income and number of minor children											All spending unit heads who expect children to attend college[a]
	less than $5000				$5000 - 9999				$10,000 or over			
	one	two	three	four or more	one	two	three	four or more	one	two	three or more	
completely or mostly	18	22	23	33	12	11	13	26	11	13	6	16
somewhat	45	48	48	51	34	45	44	42	30	33	41	41
a little or not at all	37	30	29	16	54	43	43	32	59	54	53	43
Total	100	100	100	100	100	100	100	100	100	100	100	100
Per cent with no plans	33	37	32	20	17	24	20	25	18	15	14	24
Number of spending unit heads in each group	116	98	53	74	155	182	116	91	45	54	57	1108

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[a] includes 67 cases for whom number of children was not ascertained because all children live away from home

Table 5-9

Extent to which children will support selves in college
within savings of spending units
(percentage distribution of spending unit heads
who expect children to attend college)

Extent to which children will support selves in college	Amount of savings					All spending unit heads who expect children to attend college[a]
	less than $500		$500-999	$1000-4999	$5000 and over	
	never $500 in past 5 years	$500 or more in past 5 years				
completely or mostly	18	17	12	15	11	16
somewhat	44	43	35	43	26	41
a little or not at all	38	40	53	42	63	43
Total	100	100	100	100	100	100
Per cent with no plans	26	26	25	19	19	24
Number of spending unit heads in group	247	194	158	249	124	1108

[a] includes 136 spending unit heads whose savings were not ascertained

Although spending unit heads were not asked specifically about sources of the funds to finance their children's college educations, about half of those who plan to support their children in college volunteered this information. Savings and other assets were the most frequently mentioned sources, with insurance and current income also accounting for a substantial number of responses.

Chapter #6

ATTITUDES TOWARD PUBLIC SUPPORT OF HIGHER EDUCATION

A large proportion of spending unit heads expect their children to go to college and three quarters of this group look to the publicly supported colleges and universities to educate their children. It is obvious that current levels of tax support for higher education will not permit the education of all of these children in public colleges. Our questions, in the light of these circumstances, are: (1) do people in this country generally favor an increase in the extent to which higher education costs are financed out of tax receipts? and (2) if students, rather than or in addition to institutions, are to be supported with public money, what attitudes prevail with respect to criteria for distributing such support?

Tax support for institutions of higher education

The views of spending unit heads on whether or not tax support for colleges should be increased were elicited from responses to the following question: "Part of the costs of college are now paid for out of tax funds, and part by college students and their families. Do you think that tax funds should cover more of the costs than they do now, or less, or what?"

One quarter of all spending unit heads could not answer this question. Although this probably reflects failure to understand the question or lack of forethought, it does not imply any lack of realistic thinking as was the case in Chapter #5. Of those for whom answers were obtained, 52 per cent expressed the view that a larger part of the costs of higher education should come out of tax funds, 30 per cent prefer things as they are, and the remainder, 18 per cent, suggested that taxes should cover a smaller proportion of the costs than they now do. Surprisingly, self-interest does not appear to affect the responses of spending unit heads who expect their children to go to college; they are less in favor of increased tax support to colleges than are other spending unit heads. However, parents who expect their children to attend private colleges are more inclined to believe that tax support should be reduced than are parents who expect their children to go to public colleges.

As income increases we find a decline in the proportion of spending unit heads who favor more tax support and an increase in the proportion who favor existing levels of support. Rising levels of education and occupation of the spending unit heads are associated with similar attitudes toward tax support for colleges.

Catholics and Fundamentalist Protestants are more frequently in favor of higher tax support for colleges than are non-Fundamentalist Protestants. This would appear to be related to income differences in the case of Catholics; lower incomes seem to outweigh the preference for private colleges. (See Table 5-2.)

Spending unit heads' views on the level of tax support for colleges appear to be clearly associated with the number of children in the family. As Table 6-2 indicates, those who have no children differ markedly in their response from those who have three or more children.

Table 6-1

Taxes for colleges within gross disposable income
(percentage distribution of spending unit heads)

	Gross disposable income					
Taxes for colleges	under $3000	$3000-4999	$5000-7499	$7500-9999	$10,000 and over	All spending unit heads
tax support for colleges should be:						
higher	56	53	55	45	41	52
same	25	29	30	36	37	30
lower	19	18	15	19	22	18
Total	100	100	100	100	100	100
Per cent with no opinion	35	27	24	19	21	27
Number of spend- in group	978	688	687	357	287	2997

Table 6-2

Taxes for colleges within number of minor children (percentage distribution of spending unit heads)

Taxes for colleges	Number of minor children of spending unit heads: none	one or two	three or four	five or more	All spending unit heads
tax support for colleges should be:					
higher	48	55	59	59	52
same	31	31	26	33	30
lower	21	14	15	8	18
Total	100	100	100	100	100
Per cent with no opinion	27	26	25	31	27
Number of spending unit heads in group	1505	900	445	147	2997

Differences between white and nonwhite spending unit heads are undoubtedly due, at least in part, to differences in income and education between the two groups. Nonwhites may favor a larger role for publicly supported colleges because of the belief that opportunities for admission will be less subject to discrimination in the public college than in the private college, as well as because of cost considerations.

The common image of Republicans as less inclined to favor higher taxes and more public spending than Democrats is well supported in Table 6-4. As we move through the political spectrum from "strong Democrat" to "strong Republican" the proportion favoring higher tax support for colleges declines. It is interesting to note that those who label themselves "independents" respond precisely like the sample as a whole.

The data provided in Table 6-5 permit a test of the consistency of people's views with respect to the role of government on two widely different issues -- care of the aged and higher education. Those who feel that government should assume sole or primary responsibility for care of the aged tend also to favor a larger role for government through tax support in higher education than do people who believe that the aged should be cared for by the family. This consistency was to be expected, since both sets of preferences are associated with similar characteristics, including political and religious preferences, and income.

Table 6-3

Taxes for colleges within race
(percentage distribution of spending unit heads)

Taxes for colleges	Race: white	Race: nonwhite	All spending unit heads
tax support for colleges should be:			
higher	49	75	52
same	32	14	30
lower	19	11	18
Total	100	100	100
Per cent with no opinion	27	29	27
Number of spending unit heads in group	2580	417	2997

Table 6-4

Taxes for colleges within political preference
(percentage distribution of spending unit heads)

	Political preference					
Taxes for colleges	strong Democrat	not very strong Democrat	independent	not very strong Republican	strong Republican	All spending unit heads[a]
tax support for colleges should be:						
higher	56	56	52	45	40	52
same	28	31	30	32	36	30
lower	16	13	18	23	24	18
Total	100	100	100	100	100	100
Per cent with no opinion	24	27	24	27	25	27
Number of spending unit heads in group	668	696	648	469	291	2997

[a] includes 225 spending unit heads whose political preference was not ascertained

Table 6-5

Taxes for colleges within government responsibility for the aged (percentage distribution of spending unit heads)

	Government responsibility for the aged					
	relatives should have:			government should have:		
axes for olleges	sole responsibility	primary responsibility	relatives and government should share responsibility	primary responsibility	sole responsibility	All spending unit heads[a]
ax support for colleges should be:						
higher	43	53	61	59	57	52
same	35	31	23	28	27	30
lower	22	16	16	13	16	18
Total	100	100	100	100	100	100
er cent with no opinion	23	28	19	35	25	27
umber of spending unit heads in group	836	881	266	182	681	2997

[a] includes 151 spending unit heads for whom attitude toward government responsibility for the aged was not ascertained

There is a wide range among states in the current level of tax support for higher education. In 1956, the latest year for which comparable data are available, the amounts involved were as low as one dollar and as high as eleven dollars per capita. In Table 6-6 spending unit heads are grouped according to the per capita levels of tax support for higher education in the states in which they live. There is some tendency for people to favor increased tax support where existing support is comparatively low.

Differences among geographic regions in the extent to which state and local taxes finance higher education reflect similar tendencies. The role of the publicly controlled institution is, in general, much larger in the North Central region and in the West than in the Northeast and South. These differences are reflected in the data presented in Table 6-7. We find that where tax support is comparatively low, in the South and Northeast, almost 60 per cent of heads of spending units express the view that it should be higher, compared with only 46 per cent, for the North Central states and the West.

Table 6-6

Taxes for colleges within per capita support for higher education in state of residence (percentage distribution of spending unit heads)

Taxes for colleges	Per capita tax support for higher education in state of residence: less than $5	$5 - $8	more than $8	All spending unit heads
tax support for colleges should be:				
higher	57	48	48	52
same	26	32	35	30
lower	17	20	17	18
Total	100	100	100	100
Per cent with no opinion	28	27	24	27
Number of spending unit heads in group	1305	1015	677	2997

Table 6-7

Taxes for colleges within region
(percentage distribution of spending unit heads)

Taxes for colleges	Region: Northeast	North Central	South	West	All spending unit heads
tax support for colleges should be:					
higher	58	46	56	46	52
same	26	32	28	39	30
lower	16	22	16	15	18
Total	100	100	100	100	100
Per cent with no opinion	27	25	30	23	27
Number of spending unit heads in group	645	855	1044	453	2997

Public aid for college students

Should tax funds be used to reduce the costs of going to college for all students, or should they assist only those students with outstanding ability, financial need, or both? All spending unit heads were asked: "Should tax money be used to support only those with ability, only those who have financial need, or should everyone be supported?" Almost half of the spending unit heads favored the use of tax funds in support of college students without selection based on either need or ability. Roughly equal proportions indicated that they preferred granting assistance on the basis of need or ability, or both combined; only 3 per cent said that taxes should not be used to support college students. However, this was not one of the alternatives offered by the question, so the proportion is understated.

Spending unit heads with children aged twenty and under are somewhat more likely to favor aiding all students or needy students than are other heads. (See Table 6-8.) Parents who plan to send children to college are more likely to focus on ability, perhaps combined with need, as a criterion for support from tax funds; while those who do not expect to send their children to college are more likely to focus on need as the criterion for aid. Both groups, however, are predominately in favor of aid to everyone. The group that discriminates most highly is the very small one that expects its children to have advanced college degrees. Almost half of these people mention the ability criterion, either alone or in combination with need. Parents who plan to send their children to private colleges do not differ in their feelings about tax support for students from parents who plan to send their children to public colleges.

Table 6-8

Taxes for college students within education expected for children (percentage distribution of spending unit heads with children 20 or under)

	Education expected for children				
Taxes for college students	12 grades or less	college, no degree	college, bachelor's degree	college, advanced degree	All spending unit heads with children 20 or under[a]
tax support should go to students with:					
ability	7	6	16	23	13
need	22	29	11	13	15
ability and need	9	11	17	24	15
everyone	49	51	50	28	48
no one	2	0	1	4	2
other	1	1	2	2	2
do not know	6	0	0	0	2
not ascertained	4	2	3	6	3
Total	100	100	100	100	100
Number of spending unit heads	472	68[b]	897[b]	49[b]	1598

[a] includes 112 spending unit heads whose expectations for children's education were not ascertained

[b] The sum of the columns showing expectations for college is less than the number shown in Chapter #5 because 94 spending unit heads have no definite expectations of college attendance for their children, but indicate a possibility of some children attending college.

As income rises ability is mentioned more often, need less often. Only in the $10,000 and over group do we find an appreciable fraction who would prefer to assist no one.

Table 6-10 relates the number of minor children of the spending unit head to his attitudes about tax support for college students. The frequency with which heads favor support for everyone increases as the number of children increases, although ability is mentioned by about the same proportion in all groups but the one containing those with five or more children.

Unlike its relation to attitudes about higher or lower levels of tax support for education, political preference has little effect on attitudes toward tax support for students. Democrats are somewhat more likely to mention need than are Republicans.

Table 6-9

Taxes for college students within gross disposable income (percentage distribution of spending unit heads)

	Gross disposable income					
Taxes for college students	under $3000	$3000-4999	$5000-7499	$7500-9999	$10,000 and over	All spending unit heads
tax support should go to students with:						
ability	6	12	16	19	19	13
need	26	18	14	13	11	18
ability and need	12	15	14	18	20	15
everyone	39	46	47	43	38	43
no one	3	2	2	2	7	3
other	2	3	2	2	1	2
do not know	7	2	2	1	0	3
not ascertained	5	2	3	2	4	3
Total	100	100	100	100	100	100
Number of spending unit heads	978	688	687	357	287	2997

Table 6-10

Taxes for college students within number of minor children
(percentage distribution of spending unit heads)

	Number of minor children of spending unit heads				
Taxes for college students	none	one or two	three or four	five or more	All spending unit heads
tax support should go to students with:					
ability	13	12	16	7	13
need	20	16	13	16	18
ability and need	15	17	12	11	15
everyone	39	46	50	54	43
no one	4	2	1	0	3
other	2	2	1	1	2
do not know	3	2	3	6	3
not ascertained	4	3	4	5	3
Total	100	100	100	100	100
Number of spending unit heads	1505	900	445	147	2997

Finally, some interesting contrasts appear when the respondents are grouped by broad geographic regions. As the data in Table 6-11 show, the West and North Central regions display similar responses, while the South and the Northeast regions diverge substantially from the national pattern and from each other. A much larger proportion of respondents in the Northeast express the view that ability should be taken into account than is the case for all other regions. Only one third of the respondents in the Northeast are willing to extend assistance to all students, compared to nearly half in the other regions.

Regional differences in the existing role of public support for education, in income, in religious preferences of the population, and the proportions of the population who are nonwhite all appear to help to explain the contrasts observed. Nonwhites and Fundamentalist Protestants mention need more frequently and ability less frequently than whites and non-Fundamentalist Protestants and Catholics do. Thus, the combination found in the South: low average income, a comparatively low level of tax support for education, and a large proportion of the population which is Fundamentalist Protestant, and a large proportion of nonwhites explains in large part the responses for this region of the country. Similarly, underlying characteristics of the population in the other regions account for the observed differences in views expressed.

If there is anything surprising in our findings with respect to the question of who should be given tax assistance for college, it is the fact that a large proportion of all heads of spending units favor helping everyone. This may be due to the fact that selection of a criterion for assistance, such as need or ability, requires considerably more thought on the

Table 6-11

Taxes for college students within region
(percentage distribution of spending unit heads)

Taxes for college students	Region				All spending unit heads
	Northeast	North Central	South	West	
tax support should go to students with:					
ability	17	14	8	14	13
need	15	17	23	12	18
ability and need	23	14	11	12	15
everyone	33	46	45	49	43
no one	4	2	2	2	3
other	2	2	3	3	2
do not know	3	2	4	3	3
not ascertained	3	3	4	5	3
Total	100	100	100	100	100
Number of spending unit heads	645	855	1044	453	2997

part of the respondent than does the "everyone" response. In addition, the phrasing of the question clearly suggests a positive answer rather than offering a free choice as to whether or not anyone should be supported. It is quite conceivable that a very different distribution of responses might have been obtained if the ordering of the choices suggested in the question had been reversed, with "everyone" appearing first and the ability criterion last. It appears, however, that there is no strong oppostion to government aid to higher education, and even a tendency to favor general support.

However, the extent to which presumed self-interest shapes people's attitudes is much smaller than one might have expected. It is not only those with something to gain who favor more support, nor those with nothing to gain who oppose it. Furthermore, the fact that there is no general feeling that tax funds should support students in college on the basis of need or ability alone may indicate little sympathy for selective scholarships as opposed to a general subsidy for all students. The social costs of a system which does not attempt to be selective, are of course, larger relative to its output in terms of trained manpower, than one which uses need, merit or both in giving selective aid.

Chapter #7

THE IMPACT OF EDUCATION ON CAREERS

The meaning of education

In the tables that follow, level of education is related to several aspects of the careers of spending unit heads.[1] Thus the educational levels discussed in previous chapters are equated directly with occupational and economic success.

It is difficult to determine whether the relationships between education and employment are the result of differences in the ability, motivation, or training of spending unit heads with different levels of education. Education is a measured classification which represents a mixture of these more fundamental attributes in unknown proportions. The process of education presumably sharpens an individual's natural abilities, gives him a range of information and of acquired skills which he might not otherwise have. It may also give him certain attitudes and values which affect his behavior. These acquired skills may explain a part of the differences in the careers of persons with different levels of education.

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[1] The literature on careers and social mobility has been thoroughly explored and annotated in S. M. Lipset and Reinhard Bendix, Social Mobility in Industrial Society (Berkeley: University of California Press, 1959).

H. L. Wilenski offers a brief bibliography of major work in the field of "Work, Careers, and Social Integration," International Social Science Journal 12, #4 (Fall, 1960), 553.

Some persons drop out of school because of low interest or motivation, and others drop out because they do not have the intellectual ability to keep up. Of course, differing financial resources make it easier for some persons to continue in school. Consequently, the level of completed education a person has is a measure of what the individual has learned or the values he may have acquired, and also a rough measure of his motivation and of his native abilities.

Clearly ability, motivation, and skills of individuals with different levels of education influence their careers. However, it is difficult to generalize from the patterns observed in this study to the probable impact of education on the careers of individuals in future generations. Changing quality of education and changing emphasis on remedial training for those who now drop out of school for lack of interest or ability may produce a situation in future years in which the level of education, as we measure it, is related to career patterns in a different way. 2/

2/ C. Arnold Anderson, "A Skeptical Note on the Relation of Vertical Mobility to Education," American Journal of Sociology LXVI (May, 1961), 560-570, points out that education is not the only determinant of vertical mobility. He states that observed patterns of intergenerational mobility conform more closely to patterns determined by random processes than to patterns determined mechanically by educational achievement alone. He suggests that quality of education may be partly responsible for the lack of correlation, and notes that education will account for less of the variance in upward mobility between generations, as the population becomes more highly trained. However, none of these points destroys the assertion that education is a necessary prerequisite to advancement into the highest occupational and income levels. The argument underlines the fact that grades completed is not the only aspect of education which determines vertical mobility and suggests that other factors may also be of some importance.

Education and entry into the labor force

Education makes its first mark upon the career of an individual at the time he enters the labor force. Education and characteristics related to education strongly influence the first regular job held by spending unit heads. (See Table 7-1.) Very few spending unit heads without a college degree entered professional and technical work. Few without high school diplomas entered clerical and sales work. More than 70 per cent of all spending unit heads with less than high school educations entered operative, service, and unskilled occupations.3/

The first regular job held by the head of the spending unit is closely related to his present occupation. A substantial minority (38 per cent) of persons in the labor force are in the same occupational group in which they began work. Actually a somewhat smaller proportion remain in the same occupation for their entire working lives. For young persons in our sample, present occupation and first regular job are one and the same. Thus, changing occupations is possible only for older persons. As Table 7-2 does not distinguish young and old, it understates mobility, relative to the potential change.

The extent to which changes in occupation show definite patterns is surprising. The most frequent transitions (underlined in Table 7-2) divide white collar and blue collar occupations into two almost completely different

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3/ J. D. Cowhig and C. B. Nair report differences between occupations held by farm and nonfarm youth according to education. See "Educational Status, College Plans, and Occupational Status of Farm and Nonfarm Youths," Farm Population Bureau of Census, Series ERS (8-27) #30 (August, 1961), Table #18. Farm boys who dropped out of high school were most likely to be farm laborers (40 per cent), while urban boys with comparable educational attainments are likely to become operatives (32 per cent).

Table 7-1

First occupation within education
(percentage distribution of spending unit heads who worked)

	Education						
First occupation	0 - 8 grades	9 - 11 grades	12 grades	12 grades and non-academic training	college, no degree	college degree	All spending unit heads who worked
professionals	0	2	2	8	18	57	10
managers	0	0	1	1	4	8	1
self-employed businessmen	0	0	1	1	2	0	0
clerical and sales workers	6	12	29	33	33	16	18
craftsmen, foremen	5	8	11	14	9	4	8
operatives	21	30	22	17	11	3	20
laborers	62	40	26	22	14	3	36
farmers	1	1	1	1	2	1	1
government protective workers	0	1	1	0	1	1	1
not ascertained	5	6	6	3	6	7	5
Total	100	100	100	100	100	100	100
Number of spending unit heads	976	601	444	261	319	296	2897

Table 7-2

Present occupation within first occupation (percentage distribution of spending unit heads in the labor force)

Present occupation	First occupation profes-sionals	managers	clerical and sales workers	craftsmen, foremen	opera-tives	laborers	All spending unit heads in labor force[a]
professionals	74	11	10	3	5	2	12
managers	9[b]	43	9	5	2	3	6
self-employed businessmen	4	13	8	16	6	7	8
clerical and sales workers	6	19	44	7	8	7	15
craftsmen, foremen	2	2	9	44	26	17	18
operatives	1	3	10	17	40	22	20
laborers	1	3	7	5	9	27	13
farmers	1	4	1	1	2	14	6
government protective workers	1	2	2	1	2	1	2
not ascertained	1	0	0	1	0	0	0
Total	100	100	100	100	100	100	100
Number of spending unit heads	194	34	335	159	388	729	2053

[a] includes persons whose first occupation was not ascertained, also persons who were self-employed businessmen, farmers, and government protective workers. The latter groups are not shown separately as there are too few persons reporting self-employment, farming, or protective service as first occupations.

[b] In each column the two most frequent transitions are underlined.

strata. Persons who enter manual occupations are likely to move into craftsmen's and foremen's positions, but are unlikely to enter any other occupational group except self-employed businessmen. Conversely, of all the white collar occupations only the clerical and sales workers are likely to take up a manual occupation. Taken together Tables 7-1 and 7-2 indicate th profound effect that education produces on typical careers. Education not only influences the first regular job a man obtains; it also determines his subsequent career.

Job stability and prospects

Education and occupation jointly determine the stability of the head's employment and his future prospects. Different occupations have different patterns of layoffs and short working hours. Once the earner is laid off and looking for a job, however, it is a combination of education, occupational skills, age, race, and sex that determine the length of his unemployment.[4] Keeping in mind that other factors are also relevant and that education strongly influences occupation, we have tabulated a variety of measure of job stability for educational groups. Since job stability is affected by age and age composition varies for educational groups, the data are presented separately by age. These tabulations provide a global view of the impact of education on the careers of spending unit heads. They do not describe the many intermediate relationships which produce these effects.

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[4] Stein reports that some unemployment is associated with most job changes. Much greater unemployment occurs when the job change is involuntary than when the change is voluntarily undertaken. See R. L. Stein, "Unemployment and Job Mobility: Special Labor Force Reports #3," Monthly Labor Review (April, 1960).

Table 7-3

Per cent of unemployed during past five years within education and age (for nonself-employed spending unit heads in the labor force)

Age	Education 0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	57 (70)	26 (71)	19 (77)
25 - 34	39 (224)	26 (83)	18 (195)
35 - 44	27 (233)	20 (109)	19 (169)
45 - 54	32 (255)	10 (52)	8 (121)
55 - 64	33 (191)	24 (27)	13 (70)
65 and older	26 (36)	0 (2)	0 (9)
All	34 (1009)	21 (344)	16 (641)

( ) number of spending unit heads in group

Over a third of those who work for others and do not have a high school diploma report that they were unemployed at some time during the last five years. Only 16 per cent of those with some training beyond high school are similarly affected. (See Table 7-3.) As a consequence of their unemployment the group without high school diplomas are more likely to report that their income varies from year to year than are high school graduates.

Another indication of their higher susceptibility to unemployment is that heads with high school education or less had more difficulty finding their first regular jobs. They are more likely to report a lapse of a year or more between finishing school and starting work than are college educated heads.

Seventy-two per cent of those with training beyond high school report that they have a good chance of finding another job that pays about the same if they should lose their present job. Only 48 per cent of those with less than high school education report equal confidence in their employability. (See Table 7-4.) Slightly more than one out of ten who report that it would be difficult to find a job give their lack of training and experience as reasons it would be difficult; nearly half of those who think it would be easy to find a job refer to their training and experience. Thus the perception that it would be easy to find work appears to be quite closely related to the worker's evaluation of his skills and formal training.

Table 7-4

Chances of finding another job within education (percentage distribution of spending unit heads who work for others)

	Education						
Chances of finding another job[a]	0 - 8 grades	9 - 11 grades	12 grades	12 grades and non-academic training	college, no degree	college degree	All spending unit heads who work for others
good	28	34	47	52	48	67	43
good, qualified	15	19	17	14	18	10	16
neither good or bad	2	4	4	6	4	2	3
bad, qualified	20	18	15	14	13	7	16
bad	25	18	12	9	10	7	15
do not know	7	2	2	2	3	2	3
not ascertained	3	5	3	3	4	5	4
Total	100	100	100	100	100	100	100
Number of spending unit heads	481	423	327	180	215	224	1850

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[a] This question referred to another job that paid about the same as the one the head held at the time of the interview.

Table 7-5

Per cent with good chance for promotion within education and age
(for spending unit heads who work for others)

	Education		
Age	0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	24 (60)	48 (68)	52 (75)
25 - 34	27 (203)	62 (81)	66 (188)
35 - 44	28 (209)	32 (102)	48 (164)
45 - 54	18 (225)	25 (47)	40 (115)
55 - 64	11 (169)	11 (27)	29 (68)
65 and older	7 (31)	0 (2)	11 (9)
All	21 (897)	40 (327)	50 (619)

( ) number of spending unit heads in group

Spending unit heads with less than high school education also report that chances for promotion are poor. In every age group more persons with high school and college training report that they are likely to get a promotion. Skills and training were not mentioned as frequently as reasons for good or bad chances for promotion as were local conditions and age. (See Table 7-5.)

Table 7-6

Adjusted means for 1959 work experience within education (for spending unit heads)

	Adjusted means for 1959 work experience[d]			
Education	probability of working[a]	wage rate[b]	total hours[c]	total earnings
0 - 11 grades	.85	$2.12	2085	$3757
12 grades	.85	2.32	2162	4263
12 grades and some college or non-academic training	.87	2.38	2128	4406
college degree	.91	2.85	2048	5311
All spending unit heads	.86	2.29	2092	4120

[a] adjusted by multivariate analysis for age, marital status, number of minor children, physical condition, difference in education of heads and wives, financial plans, extent of local unemployment, attitude toward hard work, need-achievement score, race.

[b] adjusted by multivariate analysis for age, sex, occupation, North-South migration, urban-rural migration, extent of local unemployment, self-employment, attitude toward hard work, need-achievement score, race, interviewers' assessment of heads' alertness, number of states lived in, physical condition, level of grades, retardation.

[c] adjusted by multivariate analysis for marital status, number of minor children, age, occupation, wage rate, physical condition, financial plans, religion, church attendance, race, attitude toward hard work, need-achievement score, extent of local unemployment, difference in education of heads and wives, immigrant status.

[d] representing work experience of education groups who are equal to one another on other characteristics.

Table 7-6 summarizes the effect of education on earnings, when numerous other characteristics of spending unit heads are controlled by means of a multivariate analysis. Better educated spending unit heads tend to have substantially higher annual earnings. Their higher wage rates and greater probability of working permit them to achieve these higher average earnings without working as many hours as do other spending unit heads.

Lifetime income and asset patterns

As a consequence of more frequent unemployment, and comparatively poor chances for promotion, spending unit heads with less than high school have a lower level of income and less optimistic income expectations than more educated spending unit heads.

Heads with high school diplomas or college training report average peak earnings that are substantially higher than those reported by spending unit heads with less education. Peak earnings are the largest amount that each spending unit head has ever earned in one year.

Table 7-7

Mean peak earnings within education and age
(for spending unit heads who worked)

	Education		
Age	0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	$3060	$3307	$3105
25 - 34	5097	5618	6492
35 - 44	5202	6715	8363
45 - 54	5263	8788	8838
55 - 64	5240	14114	9655
65 and older	4147	5619	9365
All	$4929	$6768	$7558

High school graduates over twenty-five report higher average peak earnings than the high school drop-outs in any age group. Moreover, the average peak earings of high school graduates continue to rise until the head reaches retirement. The major differences between high school graduates and those with further education appear in the age groups of fifty-five and older. However, each of these means is based on so small a number of cases that it does not warrant additional comment.

Table 7-8

Per cent with peak earnings in 1955 or before
within education and age
(for spending unit heads under 65 who worked)

	Education		
Age	0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	5 (79)	2 (72)	1 (103)
25 - 34	11 (254)	16 (99)	10 (227)
35 - 44	25 (300)	21 (134)	17 (225)
45 - 54	28 (349)	19 (79)	16 (157)
55 - 64	38 (313)	46 (35)	27 (113)
All	24 (1295)	18 (419)	14 (825)

( ) number of spending unit heads in group

In addition to relatively low peak earnings the high school drop-out is likely to have experienced an extended period of declining income. While only 14 per cent of those with training beyond high school report their highest income was earned five or more years prior to the time of interview, 24 per cent of the high school drop-outs report a five year decline in income. As one might expect, declining income is more likely to affect older spending unit heads than younger ones. However, the high school drop-outs appear to be more vulnerable to declining income during the time that they are thirty-five to fifty-four than other spending unit heads in those age groups.

Table 7-9

Per cent of spending units with savings of $5000 or more within education and age of spending unit heads (for spending units)

	Education of spending unit heads		
Age of spending unit heads	0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	0 (82)	1 (73)	0 (109)
25 - 34	1 (260)	3 (99)	7 (227)
35 - 44	5 (313)	9 (134)	21 (225)
45 - 54	11 (356)	20 (79)	27 (158)
55 - 64	14 (334)	23 (36)	44 (115)
65 and older	19 (298)	23 (30)	37 (69)
All	10 (1643)	10 (451)	20 (903)

( ) number of spending unit heads in group

The level of peak earnings and the likelihood of declining earnings is reflected in the amount of liquid assets which spending units are able to accumulate. (See Table 7-9.)

Table 7-10

Per cent expecting better income in future
within education and age
(for nonretired spending unit heads)

	Education of spending unit heads		
Age	0 - 11 grades	12 grades	12 grades and college or nonacademic training
under 25	68 (82)	83 (73)	86 (109)
25 - 34	61 (260)	73 (99)	85 (227)
35 - 44	48 (312)	54 (134)	73 (224)
45 - 54	31 (349)	39 (79)	57 (158)
55 - 64	17 (296)	26 (32)	31 (101)
65 and older	2 (123)	0 (11)	0 (24)
All	37 (1422)	57 (428)	68 (843)

( ) number of spending unit heads in group

The general pattern of earnings received by persons with different levels of education is also mirrored in their expectations about their future financial situation. Persons with less than high school education are unlikely to report that their income will be better after they reach the age of thirty-five; persons with college or nonacademic training continue to have predominately optimistic expectations about their financial situation until they reach fifty-five. Reports of higher expected wages and salaries dominate the reasons given for a better financial situation. Reports of fewer earners in the family are given almost as often as decreasing wages and salaries as reasons why the financial situation will be worse in years to come.

Table 7-11

Mean planning index within education
(for spending unit heads 35 or older in the labor force or students)

Education of head	Mean planning index
0 - 8 grades	2.3
9 - 11 grades	3.2
12 grades	3.5
12 grades and nonacademic training	3.7
some college	3.8
college, bachelor's degree	4.3
college, advanced degree	4.2
All	3.2

The belief that formal education is associated with longer time horizons and a greater tendency to look ahead and plan is borne out by an index of planning, built up of evidence throughout the interviews that the spending unit heads had plans for their own or their children's future. The index proves to be much higher for those with more education.

Appendix A

SAMPLING, INTERVIEWING, CODING

The basis for the sample used in the study of educational achievement was a cross section of the noninstitutional population of the United States selected from the Survey Research Center's national sample of dwelling units.[1] It is a multistage, area probability sample that gives equal chance of selection to all dwelling units in the conterminous United States.

This cross section sample was supplemented by over-sampling of a group of families with relatively low incomes, in order that reliable data on that stratum might be obtained for other purposes in the study. This supplement was selected from interviews taken in the 1960 Survey of Consumer Finances, which also used a cross section from the Survey Research Center's national sample. The criteria chosen for selecting low-income families designated about one out of every eight families from the Survey of Consumer Finances interviews, which resulted in a sample wherein the low-income families are represented about twice as frequently as the non-low-income families.

In order to eliminate bias for this group in statements about the whole population, the interviews with low-income families from both the cross section and the supplement were weighted at approximately half the weight of the other interviews. In addition, weights were assigned to adjust for differential response rates in substrata of the sample, reducing possible bias from that source as well.

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[1] A dwelling unit is a group of rooms or a single room occupied as separate living quarters by a family or other group of persons living together, or a person living alone. Transient and institutional living quarters are not included. In general a group of rooms is a dwelling unit if it has a separate entrance or separate cooking equipment; a single room occupied as separate living quarters is a dwelling unit if it has separate cooking equipment or constitutes the only living quarters in the structure.

Interviews were taken during March and April by the Survey Research Center's trained field staff, using standardized, pre-tested schedules. Interviews were taken with all spending unit heads in the sample.[2] The total sample yielded approximately 3,000 interviews with heads of spending units. The following pages from the questionnaire include the portion of the schedule dealing with educational achievement and plans.

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[2] A spending unit consists of all persons living together who are related by blood, marriage, or adoption, and who pool their incomes for major items of expense. The head of the spending unit is the major earner. When the spending unit consists of a married couple, the husband is always the head.

B. EDUCATION

IF ____ HAS CHILDREN WHO DON'T LIVE HERE

	I	II	III
B4. Is that a son or daughter?	Son Daughter	Son Daughter	Son Daughter
B5. How old is he (she)?	Age: ____	Age: ____	Age: ____
B6. What is he (she) doing now?			
(IF CHILD IS NOT IN COLLEGE - See B6)			
(IF WORKING) B7. What kind of work does he (she) do?	____	____	____
B8. What kind of business is that in?	____	____	____
B9. How many grades of school did he (she) finish?	____	____	____
(IF COMPLETED 12 GRADES) B10. Did he (she) go to college?	Yes No	Yes No	Yes No
(IF YES) B11. Did he (she) get a college degree?	Yes No	Yes No	Yes No

(ASK ABOUT ELDEST SON - See B4, B5)

B12. Roughly speaking, about how much income do you think your eldest son earns each year?

Under $3000 $3000 - 5000 Over $5000

(IF CHILD IS IN COLLEGE - See B6)

	I	II	III
B13. Is the college a state or city supported college or a private one?	Public Private	Public Private	Public Private
B14. About how many months was he (she) in college in 1959?	____	____	____
B15. During 1959, about how much do you think it cost you for his (her) education, including tuition, books, living expenses away from home, and transportation?	$	$	$

{ ASK ABOUT ANYONE UNDER 18 IN THIS SU
{ ASK ABOUT ADULT SONS AND DAUGHTERS OF THE HEAD IN THIS SU

You said you had ___ children living here . . . . A

IF ANY CHILD 5-25 YEARS OLD	B16. How many of the children living here are in grade school or high school?	___ B
	(IF ANY) B17. How many are in public schools?	___
IF ANY CHILD UNDER 7 YEARS OLD	B18. How many have not started school yet?	___ C

		I	II
IF ANY OTHER CHILDREN* ASK B19-33	B19. (What about the others), what are they doing now?	___	___
	B20. Which of your children would that be?	Son Daughter Age: ___	Son Daughter Age: ___
(IF CHILD IS NOT IN COLLEGE - See B19)			
(IF WORKING)	B21. What kind of work does he (she) do?	___	___
	B22. What kind of business is that in?	___	___
	B23. How many weeks did he (she) work last year?	___	___
(IF NOT WORKING)	B24. How is it that he (she) is not working?	___	___
	B25. Did he (she) do any work for pay last year?	☐ Yes ☐ No	☐ Yes ☐ No
	(IF YES) B26. How many weeks did he (she) work?		
	B27. How many grades of school did he (she) finish?	___	___
	(IF COMPLETED 12 GRADES) B28. Did he (she) go to college?	☐ Yes ☐ No	☐ Yes ☐ No
	(IF YES) B29. Did he (she) get a college degree?	☐ Yes ☐ No	☐ Yes ☐ No

*SONS OR DAUGHTERS OF HEAD OVER 25 YEARS OF AGE, OR CHILDREN UNDER 25 WHO ARE NOT ACCOUNTED FOR IN B + C.

B. EDUCATION (continued)

(IF CHILD IS IN COLLEGE - See B19)

	I	II
B30. Is the college a state- or city-supported college or a private one?	Public Private	Public Private
B31. Does he (she) stay at home or live at the college or what?	________	________
B32. About how many months was he (she) in college in 1959?	________	________
B33. During 1959 how much do you think it cost you for his (her) education, including tuition, books, (living expenses away from home), and transportation?	$	$

(ASK IF 1) CHILDREN 20 OR UNDER IN THIS SU [B16, 18, 19])
2) CHILDREN OF HEAD, 20 OR UNDER, IN SECONDARY SU'S [See Face Sheet]
3) CHILDREN OF HEAD LIVING ELSEWHERE, 20 OR UNDER [B6])

(IF BOYS) B34. How much education do you expect your boy(s) to have before they stop going to school

(IF GIRLS) B35. How much education do you expect your girl(s) to have before they stop going to school?

(IF ANY CHILDREN MAY GO TO COLLEGE)

B36. How do you expect their (his, her) college education will be financed?

B37. Do you think your children (son) (daughter) will go away to college, or will they (he) (she) live at home, or both?

B38. Do you think any of your children (your son) (your daughter) will be going to a state-supported college?

Yes How many? ________

No

B39. To what extent do you expect your children (your son) (your daughter) to support themselves (himself) (herself) in college?

(ASK EVERYONE)

B40. How much education do you think children ought to get these days?

B41. Why is that? (What does it depend on?)

B42. Part of the costs of college are now paid for out of tax funds, and part by college students and their families. Do you think that tax funds should cover more of the costs than they do now, or less, or what?

B43. Should tax money be used to support only those with ability, only those who have financial need, or should everyone be supported?

E. FAMILY HISTORY

Now I'd like to ask a few questions about your experiences in past years.

E1. Where did you grow up? ____________________
(Specify State, if U.S.; Country, if Foreign)

E2. Was that on a farm or in a large city or small town or what?

Farm   Small town   Large city   Other ____________________
(Specify)

E3. How many brothers and sisters did you have? ________ Brothers ________ Sisters

E4. How many grades of school did you finish?

None   1 2 3 4 5 6 7 8 9 10 11 12

E5. Have you had other schooling?   Yes   No

(IF YES) E6. What other schooling have you had?

Type of schooling: ____________________
(College, secretarial, business, etc.)

(IF ANY COLLEGE)

E7. Do you have a college degree?   Yes   No

E8. Were your grades (marks) above or below the grades of most of your classmates?

E9. How old were you when you left school? ____________________
(SPECIFY WHETHER AGE OR YEAR)

E10. After you left school, when did you get your first full-time regular job?

____
(SPECIFY WHETHER AGE OR YEAR)

(IF HEAD NEVER WORKED, SKIP TO PAGE 11, E15)

(IF HEAD HAS WORKED)

E11. What kind of a job was it? (What did you do?)

E12. Since you got your first regular job, how many states have you lived in (not including your experience while in military service)?

____

(IF ONE) E13. Since your first regular job, have you ever lived more than 100 miles from here?   Yes   No

(IF TWO, OR MORE) E14. Where was that?

E. FAMILY HISTORY (continued)

(IF NOW MARRIED - See A18)

E15. Now about your wife where did she grow up? ____________________
(Specify State, If U.S.; Country, if Foreign)

E16. Was that on a farm or in a large city or small town or what?

☐ Farm ☐ Small town ☐ Large city ☐ Other ____________
(Specify)

E17. How many grades of school did she finish?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

E18. Did she have other schooling? ☐ Yes ☐ No

(IF YES) E19. What other schooling did she have?

Type of schooling: ____________________
(College, secretarial, business, etc.)

(IF ANY COLLEGE)

E20. Did she get a college degree? ☐ Yes ☐ No

(ASK ABOUT HEAD'S FATHER)

E21. Where did your father grow up? ____________________
(Specify State, if U.S.; Country if Foreign)

E22. How many grades of school did he finish?

☐ None ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

(IF NONE, OR DON'T KNOW) E23. Could he read and write? ☐ Yes ☐ No

(IF COMPLETED 12 GRADES) E24. Did he go to college? ☐ Yes ☐ No

(IF YES) E25. Did he get a college degree? ☐ Yes ☐ No

E26. What would you say his usual occupation was while you were in grade school?

E27. Did he work for himself or for someone else or what? ____________

E28. Was his church preference Protestant, Catholic, or Jewish?

☐ Protestant ☐ Roman Catholic ☐ Jewish ☐ Other ____________
(Specify)

(IF PROTESTANT) E29. What denomination was that? ____________

(IF JEWISH) E30. Was that orthodox, conservative or reform? ____________

E31. Did he attend religious services regularly, occasionally, or not at all?

☐ Regularly ☐ Occasionally ☐ Not at all

After the questionnaires were received from the field staff, they were edited and coded by a trained staff supervised by members of the analysis staff. Throughout the editing and coding process checks were made to maintain conceptual consistency and to minimize error. For many of the economic and demographic variables about which data were available from other studies, missing information was assigned on the basis of relationships shown in the existing data.

Appendix B

SAMPLING ERROR

As with all survey data, these statistics are subject to error arising from sampling variability. The distribution of individuals selected for a sample usually will differ by an unknown amount from that of the whole population from which the sample is drawn. The population value is the value which would have been obtained if the entire population had been interviewed by the same survey procedures. If different samples were used under the same survey conditions, some of the estimates would be larger than the population value and some would be smaller. The sampling error is a measure of the chance deviation of a sample statistic from the corresponding population value. The sampling error does not measure the actual error of a particular sample estimate; rather, it leads to statements in terms of confidence intervals that are correct in a specified proportion of cases in the long run.

For our purposes, the most interesting figures are differences between two subgroups, and Table B-1 presents approximate sampling errors of the differences between percentages. The sampling errors in Table B-1 were computed for statistics from the 1953 and 1954 Surveys of Consumer Finances, which used samples similar to the one used in this study. They are conservative estimates, somewhat on the high side, and most differences beyond these values may be considered significant at the 5 per cent level. For tables which include data about region, the sampling errors are closer to this limit than for other data, because regional sample is clustered in a limited number of sample points rather than being spread over all sample points in the country.

Table B-1

Sampling errors

	Number of spending units				
Number of spending units	200	300	500	700	1,000
	For percentages from about 35 per cent to 65 per cent				
200	14	--	--	--	--
300	13	11	--	--	--
500	12	10	9	--	--
700	11	10	8	8	--
1,000	11	9	8	7	6
2,000	10	9	7	6	5
	For percentages around 20 per cent and 80 per cent				
200	11	--	--	--	--
300	10	9	--	--	--
500	9	8	7	--	--
700	9	8	7	6	--
1,000	9	7	6	6	5
2,000	8	7	6	5	4
	For percentages around 10 per cent and 90 per cent				
300	8	7	--	--	--
500	7	6	5	--	--
700	7	6	5	4	--
1,000	6	6	5	4	4
2,000	6	5	4	4	3
	For percentages around 5 per cent and 95 per cent				
300	6	5	--	--	--
500	5	4	4	--	--
700	5	4	4	3	--
1,000	5	4	3	3	3
2,000	5	4	3	3	2

The values shown are the differences required for significance (two standard errors) in comparisons of percentages derived from two different subgroups of the survey. The sampling error does not measure the actual error that is involved in specific survey measurements. It shows that -- except for nonsampling errors, errors in reporting, in interpolation, etc. -- differences larger than those found in the Table will arise by chance only five times in 100.

Appendix C

MULTIVARIATE ANALYSIS

Wherever it was possible to convert a dependent variable into a numerical scale, our analysis was compressed greatly by the use of a multivariate technique. The technique is a relatively simple extension of multiple correlation to the situation where the explanatory factors are membership in subclasses like age, rather than numerical variables.1/

Any regression equation is essentially a formula for predicting the dependent variable for each individual, making use of information about the individual on a number of factors simultaneously. The estimating procedure has the characteristic that the summed squared errors of these predictions are smaller than for any other equation using the same factors and the same additive model.

The new feature in our analysis is that it converts each explanatory classification into a set of "dummy variables," which take the value one if an individual belongs to a particular subclass of each factor, and zero if he does not. Instead of a single regression coefficient for a numerical variable like age, we have a set, one attached to each age group, constrained so that their weighted sum is zero.

1/ Daniel Suits, "Use of Dummy Variables in Regression Equations," Journal of the American Statistical Association 52 (December, 1957), 548-551.

For another explanation of this type of analysis and a mathematical interpretation of it, see T. P. Hill, "An Analysis of the Distribution of Wages and Salaries in Great Britain," Econometrica 27 (July, 1959), 355-381.

In practice dummy variables were used even when it might have been possible to form a numerical scale of the explanatory factor. This has the advantage that we make no restrictive assumptions about the linearity of the effect. If both extremes of the age range, for instance, are below average, such a curved effect of age appears in our data but would not be discovered in regression using age as a numerical variable.

We present the actual means of the dependent variable for each subclass of each explanatory classification in the form of unadjusted deviations from the grand mean, as well as the adjusted coefficients -- adjusted simultaneously for the effects of all the other factors and intercorrelations among them. One can then see, for example, whether those whose fathers had a college degree themselves achieved a higher level of education than the average, and secondly whether this difference persists in an analysis that also takes account of age, race, and other factors.

In addition, the differences between the unadjusted and the adjusted deviations provide evidence about the extent to which intercorrelations among the explanatory factors required adjustments, and hence the extent to which the unadjusted deviations were biased as the result of these intercorrelations.

Our predicting formula allows us to estimate an expected value for each individual by starting with the overall average, and adding or subtracting a correction for each explanatory factor, depending on which subclass he belongs to in each. In other words, the prediction for an individual uses only one "adjusted deviation" from each set. For example, in explaining the number of grades of school completed by the head of a particular spending unit we proceed as follows, using Tables 1-2 to 1-12.

Overall average --------------------------> 2.82 (3 = high school graduate)

Adjustments

1.	father graduated from high school	.70	
2.	head is 40 years old	.25	
3.	father was a craftsman	.12	
4.	head had four or more brothers and sisters		-.20
5.	head believes hard work pays off, and scored in the middle range on need-achievement	.05	
6.	head grew up in a small southern town		-.27
7.	father was a Baptist	.00	
8.	head is white	.02	
9.	head's father grew up in the South		-.05
10.	head is male	.01	
11.	head's father was self-employed	.04	
		1.19	-.52

Expected level: 2.82 + 1.19 - .52 = 3.49

The most important restriction on this type of analysis is the assumption that each explanatory factor affects the dependent variable in an independent manner, regardless of the values of the other explanatory factors. For example, we assume that education of the father always affects education of the spending unit head in the same way, no matter what the age, sex, or other characteristics of the head may be.

The assumption that the effects of various factors are independent (additive) is only an approximation to reality. Where interactions seemed likely to exist, two alternatives were available.

If two factors were likely to be interacting with each other, but not affecting any other factors, combination variables were formed. Religious preference and church attendance, attitude toward hard work and need-achievement score were treated in this way.

Where several factors were likely to operate differently for a particular subgroup, the analysis was done separately for that subgroup. This was done for education of spending unit heads under thirty-five and for education plans for boys and girls.

It is possible to imagine an individual for whom the multivariate coefficients will produce a predicted value absurdly large or absurdly small. Methods of adjusting the data so that the predictions can be used in a iterative simulation process have been suggested by Orcutt.2/

We are indebted to Vernon Lippitt and the General Electric company who developed this multivariate analysis program.

2/ Guy H. Orcutt et. al., Microanalysis of Socioeconomic Systems: A Simulation Study (New York: Harper & Bros., 1961), pp. 229-231.

Measures of importance and significance for the multivariate results

We are mostly concerned with the importance and significance of the sets of coefficients, i.e., of the factors like age, education, not with the importance of one particular age group. Selecting the largest single adjusted coefficient or the largest difference between any two requires special tests which take account of the number of possible things one could have selected. However, the reader who would like to know the order of magnitide of the sampling error of an adjusted deviation could take three times the standard deviation of the dependent variable divided by the square root of the number of cases on which the deviation is based. (This is two standard errors plus an adjustment for losses due to the clustered sample.)

There is no precise test for hetergeneity of a whole set of adjusted deviations, since they are themselves complex results of the whole multivariate process. However, we can make a rough approximation to a test by treating them like a set of means, each representative of some subpopulation, and applying a simple one-way analysis of variance.

$$F = \frac{\dfrac{\text{weighted sum of squares of adjusted deviations}}{\text{number of subclasses} - 1}}{\dfrac{\text{unexplained sum of squares}}{\begin{array}{c}\text{number of interviews} - \text{number of subclasses}\\ + \text{number of sets of subclasses} - 1\end{array}}}$$

The clustering in the sample has the effect of leaving us fewer degrees of freedom than there are interviews; however, we have a large number of interviews. The resulting F-test is relatively robust if the basic distribution departs from normality.[3] Most of our distributions are reasonably symmetrical and do not suffer from extreme kurtosis.

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[3] G. E. P. Box, "Non-Normality and Tests on Variance," Biometrika 40 (December, 1960), 318-344.

A test for hetergeneity of a set of means does not test for pattern of direction in the differences, and in some cases we have results unlikely to arise by chance which produce nonsignificant F-ratios.

A more important question than significance of pattern or significance of heterogeneity among a set of subclass deviations, is importance of differences. Important differences are those which allow us to predict the dependent variable and reduce the summed squared errors. Again there is no exact and precise way to determine importance with respect to a set of adjusted deviations in a multivariate analysis, except by redoing the analysis omitting only the classification in question. Assessing the importance of each of fourteen factors whould then involve rerunning the multivariate analysis fourteen times, an impossibly expensive procedure.

Our measure of the contribution to error reduction is:

$$\frac{\text{weighted sum of squares of adjusted deviations}}{\text{standard deviation of the dependent variable}}$$

It is analgous to the partial beta coefficient in the ordinary multiple regression using numerical variables. The following imaginary experiment should explain why we refer to this measure as a partial beta coefficient:

Suppose we considered the set of coefficients for one explanatory factor, say age, as a single bit of information, the importance of which we want to measure. We should then have for each individual one bit of information for each of the explanatory factors, in the form of the adjusted deviation for the subgroup in which he falls. Suppose we then treat these adjusted coefficients as numbers. This amounts to defining a new set of variables (one for each factor) which can be treated numerically. We could then compute a new multiple regression which uses these new "variables" to explain the dependent variable.

It can be shown algebraically that the regression coefficient for each of these new variables, e.g. "age," "occupation," and so forth will be 1.0. The character of our estimates of the adjusted deviations in the original analysis makes this so.

The formula for the partial beta coefficient in ordinary numerical multiple regression to be found in the statistical textbooks is:4/

$$\begin{array}{c}\text{Partial beta coefficient} \\ \text{for factor A}\end{array} = \frac{\begin{array}{c}\text{regression coefficient} \\ \text{for explanatory variable A}\end{array} \times \begin{array}{c}\text{standard deviation of} \\ \text{explanatory variable A}\end{array}}{\text{standard deviation of the dependent variable}}$$

The upper left term we have just said becomes 1.0, the upper right term is the weighted sum of squares of the adjusted deviations, since they *are* the variable, and have a weighted mean of zero.

The one difference from ordinary beta coefficients is that these will all be positive, because the different directions of effect were already accounted for by the signs of the adjusted deviations.

The partial beta measure of importance so calculated is invariant with respect to the standard deviation of the dependent variable, and is adjusted for the variability of the predictor, hence provides an index of the importance of an explanatory factor (classification) relative to other factors in the same analysis or in other analyses.

4/ Mordecai Ezekiel, *Methods of Correlation Analysis* (New York: John Wiley & Sons, 1941), p. 217.

Appendix D

ESTIMATING AGGREGATES

Extrapolations from the Bureau of the Census data for 1959 show that there were approximately 57.4 million spending units in the United States during March and April, 1960. Using this number, and the proportions shown in tables in this report, means and percentages can be expanded to national aggregate estimates. However, several limitations on this process should be borne in mind.

(1) All estimates are subject to sampling error (deviation from true value of estimate derived from a single sample, although the average estimate from many samples would contain no error). Each of the three statistics used in estimating an aggregate is subject to sampling error: the estimate of number of units in the population, the estimate of the proportion of units relevant, the estimate of the mean or percentage. When an aggregate is based on a mean or a percentage for a small subgroup, the cumulative effect of the three types of sampling error is substantial. See Appendix B.

(2) The data also contain biases (systematic errors) arising from errors on the part of respondents and from the fact that we were not able to interview everyone who fell into our sample. Our method of weighting responses attempts to compensate for nonresponse biases but all such biases may not be remedied.

(3) All aggregates derived from this survey apply only to that portion (96 per cent) of the United States population which resides in private dwelling units. This excludes inmates of institutions, people who live in college dormitories, hotels, military bases, Y.M.C.A.'s and similar places.

(4) There are conceptual differences which complicate comparisons between these data and other presentations of national aggregates.

Census family units are made up of two or more related individuals who live together. Our definition includes these units and also considers people who live alone or with nonrelatives as separate family units.

What we term savings refers only to savings accounts, checking accounts and government bonds; it does not refer to the savings flow (addition to net worth).

Other monographs from the Survey Research Center's Monograph Series:

#20 1960 Survey of Consumer Finances (1961), 310 pp. ($7.50).

Data on the distribution of household incomes, assets, debts and major transactions, and other data from numerous periodic surveys of consumer attitudes and plans. Bibliography.

#21 Redemption Settlements and Rehabilitation, A Study of Workmen's Compensation in Michigan, by James N. Morgan, Marvin Snider, and Marion G. Sobol (1959), 151 pp. (free).

Interviews with injured workers a year and a half after final settlement of their claims to see whether the settlement facilitated the return to work. Comparison interviews with workers on weekly compensation payments.

#22 How People Pay for College, by John B. Lansing, Thomas Lorimer, and Chikashi Moriguchi (1961), 160 pp. ($2.50).

A study of actual experience and of plans in financing college education, based on national personal interview surveys. A report to the Office of Education.

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